

Prepared for:
National Marine Fisheries Service
National Oceanic and Atmospheric Administration

Pursuant to:
National Environmental
Policy Act Section 102(2)(C)



Environmental Assessment and Regulatory Impact Review for the Definition of the Zero Mortality Rate Goal of the Marine Mammal Protection Act

Draft

April 1, 2004

Abstract

This environmental assessment identifies and evaluates the potential effects of several alternatives designed to define the Zero Mortality Rate Goal (ZMRG), a requirement of Section 118 of the Marine Mammal Protection Act (MMPA). The objective of the ZMRG is to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries "to insignificant levels approaching a zero mortality and serious injury rate." Currently there is no regulatory definition for the ZMRG yet it is the long-term target of take reduction plans as well as an overall mandate for marine mammal bycatch reduction in the MMPA. The preferred alternative proposes to use ten percent of the potential biological removal level as the target level in defining the ZMRG. By defining the ZMRG, take reduction teams would have a clear, specific target for the long-term goal of the take reduction plans. No significant impacts are anticipated as a result of the proposed action.

Please contact the following person with comments and questions:

Tom Eagle
Office of Protected Resources
National Marine Fisheries Service
Silver Spring, MD 301-713-2322, ext. 105
Tom.Eagle@noaa.gov

EXECUTIVE SUMMARY

In 1994, Marine Mammal Protection Act (MMPA) amendments created Section 118, which includes provisions concerning incidental mortality and serious injury of marine mammals in commercial fisheries. One objective of these provisions, as described in Section 118(b), is to achieve the zero mortality rate goal (ZMRG). This environmental assessment (EA) focuses on the first provision (the target) of Section 118(b), which is *to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries “to insignificant levels approaching a zero mortality and serious injury rate”* by April 30, 2001 (although the deadline has passed, the requirement must still be met). Other Section 118(b) provisions of the ZMRG include: fisheries that maintain the target levels of incidental mortality and serious injury do not have to further reduce incidental mortality and serious injury rates; the Secretary shall review progress of all commercial fisheries toward achieving the target and submit a report to Congress; and if, after review, a fishery does not achieve the target, NMFS will take appropriate action as provided in Section 118(f), which describes the take reduction process including its long-term goal of achieving ZMRG.

There is currently no statutory or regulatory definition of what levels would be “insignificant levels approaching a zero mortality and serious injury rate.” To determine if the goal of Section 118 is being met with respect to the ZMRG on a fishery-specific basis, it is necessary for the National Marine Fisheries Service (NMFS) to define ZMRG so that it can be quantified and individualized.

To determine progress of commercial fisheries, by fishery, toward the ZMRG as provided by MMPA Sections 118(b) and (f), NMFS proposes to determine a target level of incidental mortality and serious injury for each marine mammal stock affected by the commercial fishery under consideration when deciding whether that fishery has attained ZMRG. In this EA, the agency identifies this target level as the insignificance threshold (T_{ins}), which indicates the maximum amount of incidental mortality and serious injury that can be considered to be insignificant levels approaching a zero rate. If the amount of incidental mortality and serious injury is less than or equal to T_{ins} for a particular stock, the level of incidental mortality and serious injury would be considered insignificant and approaching a zero rate for that stock, and that fishery would be considered as having met the ZMRG.

The No Action Alternative would maintain status quo, thus not presenting any regulatory definition of ZMRG. Although there is no regulatory definition of ZMRG, NMFS has been using the criterion of ten percent of a stock’s potential biological removal level (PBR) in stock assessment reports (SARs). However, ZMRG would continue to have no regulatory definition; thus, it would be unclear how ZMRG applies in the implementation of MMPA Section 118.

The action alternatives differ only in the way T_{ins} is calculated. Because T_{ins} is calculated differently under each action alternative, the number and types of fisheries resulting in marine mammal incidental mortality and serious injury greater than the T_{ins} differ under

each alternative. NMFS has identified Alternative 2 as the preferred alternative for the proposed action. Alternative 2 defines T_{ins} as ten percent of the stock's PBR, which is the informal interpretation of ZMRG used today and under the No Action Alternative. Alternative 2 would use varying recovery factors, and thus have different recovery delays, for stocks depending on their status. Alternative 3 defines T_{ins} as the value that would not cause more than a ten percent delay in recovery of the marine mammal stock. Alternative 3 is not consistent with Section 118 of the MMPA because it would result in an equivalent T_{ins} and PBR for endangered species; however, it is analyzed throughout the EA for purposes of comparison. Alternative 4 defines T_{ins} as 0.1 percent of the minimum population estimate (N_{min}) for cetaceans or 0.3 percent of N_{min} for pinnipeds. Under Alternatives 3 and 4, T_{ins} would be calculated differently for cetaceans and pinnipeds with T_{ins} being slightly higher for pinnipeds under both alternatives.

Alternative 2 would be the most protective of endangered stocks, and Alternative 4 would be the most protective of healthy, robust stocks. Alternatives 2 and 4 would be equally protective of threatened, depleted, or unknown stocks while Alternative 3 would be the least protective of such stocks.

Alternative 2 would protect the largest number of marine mammal stocks and would result in the largest number of commercial fisheries that would need to reduce incidental mortality and serious injury to achieve ZMRG. Alternative 3 would protect the fewest stocks, and Alternative 4 would protect a moderate number of stocks. Therefore, Alternative 3 would require reduction in incidental mortality and serious injury from the fewest commercial fisheries while Alternative 4 would require reduction in incidental mortality and serious injury from a moderate number of commercial fisheries. None of the alternatives would be likely to adversely affect essential fish habitat or species listed by the Endangered Species Act.

The No Action Alternative would not impact fishery socioeconomics. Because Alternative 2 would affect the greatest number of fisheries, it would have the largest number of potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Alternative 3 would have the fewest of such impacts, and Alternative 4 would have a moderate amount of such impacts. Under all action alternatives, impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP pursuant to MMPA Section 118(f). Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Opportunity costs to all fishery participants could result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

- 91 The preferred alternative, Alternative 2, would not result in any significant, adverse
92 impacts on the human environment, including protected marine populations, commercial
93 fisheries, fishermen, or other regulatory programs.

Environmental Assessment and Regulatory Impact Review for the Definition of the Zero Mortality Rate Goal of the Marine Mammal Protection Act

Contents

Chapter	Page
---------	------

Acronyms and Abbreviations	vi
----------------------------	----

Chapter 1 – Purpose and Need

1.1	Introduction.....	1-1
1.2	ZMRG – Legislative History	1-2
1.3	ZMRG – Target Level	1-3
1.4	MMPA Elements Related to ZMRG.....	1-4
1.4.1	Potential Biological Removal Level	1-4
1.4.2	Fishery Classification.....	1-5
1.4.3	Take Reduction Plans	1-6
1.5	ZMRG – Regulatory Status	1-7
1.6	Summary of Purpose and Need.....	1-7
1.7	The NEPA Process.....	1-8
1.8	Other Environmental Requirements Considered	1-10
1.8.1	Endangered Species Act	1-10
1.8.2	Magnuson-Stevens Fishery Conservation and Management Act	1-10
1.8.3	Executive Order 12866: Regulatory Planning and Review	1-10
1.8.4	Regulatory Flexibility Act	1-11

Chapter 2 – Alternatives

2.1	Alternative 1: No Action Alternative.....	2-1
2.2	Action Alternatives	2-2
2.2.1	Alternative 2: Preferred Alternative.....	2-4
2.2.2	Alternative 3.....	2-4
2.2.3	Alternative 4.....	2-4
2.3	Alternatives Considered but Dismissed from Further Analysis	2-5
2.3.1	Alternative 5.....	2-5
2.3.2	Alternative 6.....	2-5
2.3.3	Alternative 7.....	2-6
2.3.4	Alternative 8.....	2-7
2.3.5	Alternative 9.....	2-7

Chapter 3 – Existing Conditions

3.1	Status of Protected Marine Populations	3-1
3.1.1	Marine Mammals	3-1
3.1.2	Sea Turtles	3-2
3.1.2.1	Green Turtle	3-3
3.1.2.2	Hawksbill Turtle	3-3
3.1.2.3	Kemp’s Ridley Turtle	3-3
3.1.2.4	Leatherback Turtle	3-4
3.1.2.5	Loggerhead Turtle	3-4
3.1.2.6	Olive Ridley Turtle	3-4
3.1.3	Sea Birds	3-5
3.1.4	Anadromous and Marine Fishes	3-5
3.2	Description of Active US Commercial Fisheries	3-6
3.3	TRTs and TRPs	3-7
3.3.1	Pacific Offshore Cetacean TRT	3-7
3.3.2	Mid-Atlantic Harbor Porpoise TRT	3-8
3.3.3	Gulf of Maine Harbor Porpoise TRT	3-8
3.3.4	Atlantic Large Whale TRT	3-8
3.3.5	Bottlenose Dolphin TRT	3-9

Chapter 4 – Environmental Impacts

4.1	Impacts on Protected Marine Populations	4-1
4.1.1	Sea Turtles, Sea Birds, and Salmonids and Other Protected Fishes	4-1
4.1.2	Marine Mammals	4-2
4.1.2.1	Alternative 1: No Action Alternative	4-3
4.1.2.2	Alternative 2: Preferred Alternative	4-4
4.1.2.3	Alternative 3	4-9
4.1.2.4	Alternative 4	4-11
4.2	Impacts on US Commercial Fisheries	4-15
4.2.1	Alternative 1: No Action Alternative	4-19
4.2.2	Alternative 2: Preferred Alternative	4-20
4.2.2.1	Alaska Region	4-20
4.2.2.2	Atlantic Region	4-20
4.2.2.3	Pacific Region	4-22
4.2.3	Alternative 3	4-23
4.2.3.1	Alaska Region	4-23
4.2.3.2	Atlantic Region	4-24
4.2.3.3	Pacific Region	4-25
4.2.4	Alternative 4	4-25
4.2.4.1	Alaska Region	4-26
4.2.4.2	Atlantic Region	4-26
4.2.4.3	Pacific Region	4-27
4.3	Regulatory Impacts	4-28
4.3.1	Alternative 1: No Action Alternative	4-29

89	4.3.1.1 MMPA	4-29
90	4.3.1.2 Magnuson-Stevens Act	4-29
91	4.3.2 Alternative 2: Preferred Alternative.....	4-29
92	4.3.2.1 MMPA	4-29
93	4.3.2.2 Magnuson-Stevens Act	4-29
94	4.3.3 Alternative 3.....	4-30
95	4.3.3.1 MMPA	4-30
96	4.3.3.2 Magnuson-Stevens Act	4-30
97	4.3.4 Alternative 4.....	4-31
98	4.3.4.1 MMPA	4-31
99	4.3.4.2 Magnuson-Stevens Act	4-31
100	4.4 Cumulative Impacts	4-32
101	4.5 Consideration of Significant Criteria	4-33

Chapter 5 – Regulatory Impact Review

105	5.1 Introduction.....	5-1
106	5.2 Problem Statement	5-1
107	5.3 Objectives	5-1
108	5.4 Alternatives	5-1
109	5.5 Steps Taken to Minimize the Economic Impact	5-1
110	5.6 Determination of Insignificant Economic Impact on a Substantial Number of	
111	Small Entities	5-2
112	5.7 Determination of Insignificant Regulatory Action	5-4

Chapter 6 – List of Preparers

Chapter 7 – References

Appendices

120	Appendix A: ANPR Comments
121	Appendix B: Coordination Letters

Environmental Assessment and Regulatory Impact Review for the Definition of the Zero Mortality Rate Goal of the Marine Mammal Protection Act

Acronyms and Abbreviations

ANPR	Advance Notice of Proposed Rulemaking
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental assessment
EIS	Environmental impact statement
ESA	Endangered Species Act
ETP	Eastern Tropical Pacific Ocean
FMP	Fishery management plan
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
IRFA/FRFA	Interim and Final Regulatory Flexibility Analysis
LOF	List of Fisheries
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
N_{\min}	Minimum population estimate
NOAA	National Oceanic and Atmospheric Administration
OSP	Optimum sustainable productivity
OSY	Optimum sustainable yield
PBR	Potential biological removal
R_{\max}	Maximum net productivity rate
RFA	Regulatory Flexibility Act
SAR	Stock assessment report
SRG	Scientific review group
T_{ins}	Insignificance threshold
TRP	Take reduction plan
TRT	Take reduction team
ZMRG	Zero Mortality Rate Goal

1.0 PURPOSE AND NEED

1.1 Introduction

An ongoing problem is mortality and serious injury of marine mammals incidental to fisheries operations. The Marine Mammal Protection Act (MMPA) of 1972 specifically addresses this problem.

The National Marine Fisheries Service (NMFS), also known as the National Oceanic and Atmospheric Administration (NOAA) Fisheries, is responsible for implementing the MMPA. In 1994, MMPA amendments created Section 118, which includes provisions concerning incidental mortality and serious injury of marine mammals in commercial fisheries. One objective of these provisions, as described in Section 118(b), is to achieve the zero mortality rate goal (ZMRG). This EA focuses on the first provision (the target) of Section 118(b), which is *to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries “to insignificant levels approaching a zero mortality and serious injury rate”* by April 30, 2001 (although the deadline has passed, the requirement must still be met). Other Section 118(b) provisions of the ZMRG include: fisheries that maintain the target levels of incidental mortality and serious injury do not have to further reduce incidental mortality and serious injury rates; the Secretary shall review progress of all commercial fisheries toward achieving the target and submit a report to Congress; and if, after review, a fishery does not achieve the target, NMFS will take appropriate action as described in Section 118(f), which describes the take-reduction process including its long-term goal of achieving ZMRG.

There is currently no statutory or regulatory definition of what levels would be “insignificant levels approaching a zero mortality and serious injury rate.” To determine if the goal of Section 118 is being met with respect to the ZMRG on a fishery-specific basis, it is necessary for NMFS to define ZMRG so that it can be quantified and individualized.

In August 2002 three environmental organizations sued NMFS (*Center for Biological Diversity, et al v. National Marine Fisheries Service*, Case No. C-02-3901-SC (N.D. Cal. 2003)) alleging lack of compliance with several requirements in Section 118, including failure to submit a report to Congress on the progress of commercial fisheries toward reaching the ZMRG. According to the April 2003 settlement agreement, NMFS agreed to submit for publication in the *Federal Register* a final rule defining ZMRG and to submit a report to Congress on progress of commercial fisheries toward reaching the ZMRG in June 2004.

This environmental assessment (EA) was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality’s Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and the NOAA environmental review procedures (NOAA, 1999). This EA analyzes the potential environmental impacts of implementing several alternatives identified to define the ZMRG.

1.2 ZMRG — Legislative History

In the original MMPA of 1972, the ZMRG was directed at the yellowfin tuna purse seine fishery in the Eastern Tropical Pacific Ocean (ETP). Because fishermen were intentionally encircling dolphins to catch tuna, hundreds of thousands of dolphins were killed annually. Although the ZMRG was directed specifically at the ETP tuna fishery, the enacted language was sufficiently broad that it could include other US commercial fisheries and fisheries in waters under US jurisdiction. Legislative history of the MMPA provided that ZMRG was to include consideration of fishery economics and available technology while addressing the need for immediate reduction of incidental mortality and serious injury of marine mammals.

Since 1972, several pieces of legislation have amended the MMPA and contributed to the evolution of the ZMRG concept:

- **1981 MMPA amendments:** The ZMRG requirement was determined to be satisfied for the ETP yellowfin tuna fishery by continuation of applying the best marine mammal safety techniques and equipment that are economically and technologically practicable. For other fisheries, the goal remained unchanged, to spur technological innovation to reduce incidental marine mammal takes.
- **1988 MMPA amendments:** These amendments included an interim exemption to allow compliant and registered commercial fishing operations to incidentally kill or seriously injure marine mammals while NMFS collected information on the nature and level of marine mammal incidental mortality and serious injury in commercial fisheries.
- **International Dolphin Conservation Act of 1992:** Instead of focusing on the ZMRG objective of utilizing the best available technology, specific per-vessel limits were set to limit dolphin mortality during certain time periods.
- **1994 MMPA amendments:** The 1994 amendments created Section 118, which replaced the interim exemption program of 1988 with provisions to govern interactions between marine mammals and all US commercial fisheries, with the exception of the ETP tuna fishery. Section 118 identifies the short- and long-term goals for marine mammal mortality and serious injury incidental to all commercial fisheries and provides a mechanism by which non-complying fisheries should reach those goals. While a definition of the short-term goal was provided in legislation, no definition of ZMRG was provided even though commercial fisheries were required to achieve ZMRG by April 30, 2001.
- **International Dolphin Conservation Program Act of 1997:** The ZMRG was not specifically addressed, but the Act set a long-term, stock-specific, annual

mortality limit of less than or equal to 0.1 percent of the minimum population estimate of the stock (N_{\min}).

The MMPA now retains the ZMRG but still does not define it. As part of the goal of defining ZMRG, this EA's proposed action is for NMFS *to identify what levels of mortality and serious injury would be considered insignificant and approaching a zero rate*. Thus, the agency would define ZMRG so that it can be quantified and individualized on a fishery-specific basis (NMFS, June 1995a).

1.3 ZMRG — Target Level

To determine progress of commercial fisheries, by fishery, toward the ZMRG as provided by MMPA Sections 118(b) and (f), NMFS proposes to determine a target level of incidental mortality and serious injury for each marine mammal stock affected by the commercial fishery under consideration when deciding whether that fishery has attained ZMRG. In this EA, the agency identifies this target level as the insignificance threshold (T_{ins}), which indicates the maximum amount of incidental mortality and serious injury that can be considered to be approaching a zero rate. If the amount of incidental mortality and serious injury is less than or equal to T_{ins} for a particular stock, the level of incidental mortality and serious injury would be considered insignificant and approaching a zero rate for that stock.

To individualize the ZMRG, NMFS proposes that the T_{ins} be determined for each marine mammal stock. A US commercial fishery that has achieved the ZMRG would have a level of incidental mortality and serious injury less than or equal to the T_{ins} for each marine mammal stock with which the fishery interacts. For example, one commercial fishery may incidentally interact with three marine mammal stocks, in which case that fishery would achieve ZMRG only if it has levels of incidental mortality and serious injury that are lower than the respective T_{ins} for each of the three stocks. If a fishery does not exceed the T_{ins} for any interacting marine mammal stock, the fishery would achieve ZMRG.

Insignificance Threshold

The **insignificance threshold** (T_{ins}) is the upper limit of annual incidental mortalities and serious injuries for a marine mammal stock that could be considered insignificant and approaching a zero rate.

Under each alternative, the rate of the ZMRG is determined to be the annual incidental mortality and serious injury of a marine mammal stock as a function of the stock's population size or productivity. The basis of the ZMRG is the biological significance of the amount of incidental mortality and serious injury to the stock; biological significance takes into account stock productivity, including species-specific fecundity and population

growth rates. Therefore, the biological relevance of using a rate describing the number of incidental mortalities and serious injuries per year is less helpful than using a rate describing the number of incidental mortalities and serious injuries per year per population. Under each alternative in this EA, the rate units for the insignificance threshold would be annual incidental mortalities and serious injuries per 1,000 animals in the stock.

1.4 MMPA Elements Related to ZMRG

There are other MMPA elements that relate to ZMRG and the development of its quantitative definition as described in the following sections.

1.4.1 Potential Biological Removal Level

The MMPA provides that the potential biological removal level (PBR) for a marine mammal stock is the “maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.” Several alternatives considered in this EA define T_{ins} , and thus ZMRG, in terms of or as a derivative of a stock’s PBR.

Potential Biological Removal Level (PBR)

PBR is the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

To calculate PBR for any marine mammal stock,

$$PBR = N_{min} * 0.5R_{max} * F_r$$

where N_{min} = the minimum population estimate of the stock.

R_{max} = the maximum theoretical or estimated net productivity rate of the stock at a small population size.

F_r = a recovery factor of between 0.1 and 1.0.

If insufficient data exist to calculate R_{max} properly for a particular stock, default values are used. For cetaceans, the default R_{max} is four percent ($0.5R_{max} = 0.02$). For pinnipeds, the default R_{max} is 12 percent ($0.5R_{max} = 0.06$).

Default values of F_r have been assigned according to stock status. For healthy stocks, F_r equals 1.0; for endangered stocks, F_r equals 0.1; and for stocks with a threatened,

depleted, or unknown status, F_r equals 0.5. However, flexibility allows for adjustment of the default F_r on a stock-specific basis if ample scientific data exist.

1.4.2 Fishery Classification

According to Section 118, NMFS classifies commercial fisheries based on frequency of incidental mortality and serious injury of marine mammals. The agency must reexamine the classification, known as the List of Fisheries (LOF), at least annually and publish any necessary changes in the *Federal Register*. The LOF is based on annual stock assessment reports (SARs) as well as other sources of new information. In the LOF, fisheries are classified in three categories:

- Category I includes commercial fisheries with frequent incidental mortality and serious injury of marine mammals.
- Category II includes commercial fisheries with occasional incidental mortality and serious injury of marine mammals.
- Category III includes commercial fisheries with a remote likelihood of or no known incidental mortality and serious injury of marine mammals.

Determining the “frequent,” “occasional,” and “remote likelihood/no known” thresholds consists of a two-tiered approach to classify a fishery based on its annual interactions with a specific stock. Tier 1 addresses cumulative impacts (incidental mortalities and serious injuries of marine mammals due to commercial fishing operations) of all fisheries on a particular stock. If such impacts are less than or equal to ten percent of that stock’s PBR, all fisheries interacting with that stock are classified in Category III. Otherwise, these fisheries are subject to analysis in Tier 2, which addresses impacts of individual fisheries on each stock. According to Tier 2 criteria:

- Category I comprises fisheries with incidental mortality and serious injury greater than or equal to 50 percent of the stock’s PBR.
- Category II comprises fisheries with incidental mortality and serious injury between one and 50 percent of the stock’s PBR.
- Category III comprises fisheries with incidental mortality and serious injury less than or equal to one percent of the stock’s PBR.

In the absence of reliable data to determine the frequency of marine mammal incidental mortality and serious injury in a particular commercial fishery, NMFS determines Category II and III classifications based on other factors: fishing techniques, gear used, methods to deter marine mammal, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

1.4.3 Take Reduction Plans

For all strategic stocks that interact with Category I or II commercial fisheries, the MMPA generally requires the formation of a take reduction team (TRT) to prepare a take reduction plan (TRP). TRTs must include a balanced representation of various stakeholders listed under the MMPA. TRPs are designed to prevent further decline and to assist in the recovery of a strategic marine mammal stock that interacts with Category I or II commercial fisheries.

Strategic Stock

A **strategic stock** is a marine mammal stock for which the level of direct human-caused mortality exceeds PBR; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened species or an endangered species under the ESA or is designated as depleted under the MMPA.

Section 118 generally requires development and implementation of a TRP for all strategic stocks that interact with Category I or II fisheries. A TRP may also be designed for Category I fisheries that have high incidental mortality and serious injury across a number of strategic marine mammal stocks. If NMFS has insufficient funds to develop and implement all required TRPs, priority is given to marine mammal stocks with incidental mortality and serious injury exceeding PBR, stocks with small population size, and stocks with the highest rate of decline. TRPs are not required for Category III fisheries.

The immediate goal of a TRP is to reduce, within six months of implementation, incidental mortality and serious injury of a strategic stock to a level below PBR. *The long-term goal of a TRP is to reduce, within five years of implementation, the incidental mortality and serious injury to insignificant levels approaching a zero mortality and serious injury rate*, taking into account available technology (such as modified fishing gear and techniques), economic feasibility, and state and regional fishery management plans (FMPs). NMFS must consider the draft TRP submitted by the TRT and develop regulations to implement the plan, which also requires NEPA analysis.

1.5 ZMRG — Regulatory Status

In its *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations*, under Section 118 of the *Marine Mammal Protection Act* (NMFS, 1995a), NMFS included a proposed definition of the ZMRG. However, the ZMRG definition was not included in the final rule (NMFS, 1995c) because the agency was still considering what would be an appropriate goal. The proposed rule in 1995 defined ZMRG as being satisfied by meeting one of two criteria:

- 1) A fishery, collectively with other commercial fisheries, removes ten percent or less of any stock's PBR (see section 1.4.1).
- 2) A fishery by itself removes one percent or less of a stock's PBR for a stock that has an annual removal rate of more than ten percent of its PBR when calculated collectively with other commercial fisheries.

According to the 1995 proposed rule, fisheries that had achieved the ZMRG would be classified in Category III (see section 1.4.2).

NMFS currently uses ten percent of PBR in SARs to determine if a fishery's level of incidental marine mammal mortality and serious injury meets the ZMRG. The SARs have no regulatory effect, and NMFS will continue to use the ten-percent-of-PBR criterion until a final rule defining ZMRG is published.

1.6 Summary of Purpose and Need

NMFS is responsible for implementing Section 118 of the MMPA. Section 118 describes regulations concerning incidental mortality and serious injury of marine mammals in commercial fisheries. The objective of these regulations is to achieve the ZMRG, or to reduce mortality and serious injury of marine mammals incidental to commercial fisheries to insignificant levels approaching a zero rate. There is currently no regulatory definition of what levels would be "insignificant levels approaching a zero mortality and serious injury rate" on a fishery-specific basis. Thus, to determine if the goal of Section 118 is being met with respect to ZMRG, it is necessary for NMFS to define the ZMRG so that it can be quantified and individualized.

Further, in August 2002, three environmental organizations sued NMFS alleging lack of compliance with Section 118 provisions. According to the April 2003 settlement agreement, NMFS agreed to submit a final rule defining ZMRG for publication in the *Federal Register* and a report to Congress on progress of commercial fisheries towards reaching the ZMRG in June 2004.

To determine progress of commercial fisheries, by fishery, as provided by MMPA Sections 118(b) and (f), NMFS must determine the T_{ins} of each marine mammal stock

affected by the commercial fishery under consideration when deciding whether that fishery has attained ZMRG. A successful, implementable alternative would be consistent with the four statutory requirements related to ZMRG as described in MMPA Section 118(b).

There are other MMPA elements that relate to ZMRG and the development of its quantitative, regulatory definition. NMFS currently uses PBR as a component in determining whether a commercial fishery has achieved the ZMRG for purposes of SARs. Several alternatives considered in this EA define T_{ins} , and thus ZMRG, in terms of a stock's PBR.

Another element of Section 118 that relates to ZMRG is the take-reduction concept. Section 118 generally requires development and implementation of a TRP for all strategic stocks that interact with Category I or II fisheries. The immediate goal of a TRP is to reduce, within six months of implementation, incidental mortality and serious injury of a strategic stock to a level below PBR. The long-term goal of a TRP is to reduce, within five years of implementation, the incidental mortality and serious injury to insignificant levels approaching a zero mortality and serious injury rate, taking into account several listed factors.

1.7 The NEPA Process

NEPA, enacted by Congress in 1969, requires the consideration of environmental issues in Federal agency planning and decision-making. Under NEPA, Federal agencies must prepare an environmental impact statement (EIS) for those proposed Federal actions that would significantly affect the quality of the human environment. Federal agencies may prepare an EA when the potential significance of a proposed Federal action's environmental impacts is unknown or to provide Federal decision-makers with sufficient evidence and analysis to determine whether or not to prepare an EIS. The EA includes brief discussions of the following:

- The purpose and need for the proposed action.
- The alternatives.
- The existing conditions.
- The environmental impacts of the proposed action and alternatives.
- A listing of agencies and persons consulted.

If on the basis of the EA, Federal decision-makers determine that the proposed action would not have a significant impact on the human environment, a Finding of No Significant Impact (FONSI) is issued. If on the basis of the EA, Federal decision-makers determine that the proposed action would have a significant impact on the human environment, an EIS is prepared.

NOAA's NEPA Guidelines/Regulations

This EA addresses the proposed Federal action of creating a new rule to define and implement the ZMRG.

NOAA has guidelines for implementing NEPA, which include criteria for determining significance of impacts (NOAA, 1999). Such criteria should be used to determine what type of environmental review is appropriate for NEPA compliance. Significance requires consideration of context and intensity. The contextual facet means analysis of the action as it may affect society, as a whole, regionally, and locally. Intensity describes the severity of the impact. When determining significance, several factors concerning intensity should be considered (40 CFR 1508.27):

- Impacts may be both beneficial and adverse.
- Degree to which public health and safety is affected.
- Unique characteristics of the geographic area.
- Degree to which effects on the human environment are likely to be highly controversial.
- Degree to which effects are highly uncertain or involve unique or unknown risks.
- Degree to which the action establishes a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Individually insignificant but cumulatively significant impacts.
- Degree to which the action adversely affects entities listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historic resources.
- Degree to which endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973, are adversely affected.
- Whether a violation of Federal, state, or local law for environmental protection is threatened.
- Whether a Federal action may result in the introduction or spread of a nonindigenous species.

1.8 Other Environmental Requirements Considered

Although this EA pertains specifically to provisions of the MMPA, NMFS must follow other applicable laws and regulations in developing a new rule for the ZMRG definition.

1.8.1 Endangered Species Act

The Endangered Species Act (ESA) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered. As per the ESA, it is unlawful for any person subject to the jurisdiction of the United States (US) to “take” any such species within the US or the high seas, unless authorized under specific provisions of the ESA. The ESA defines “take” as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct to species listed as threatened or endangered. In addition, Federal agencies in consultation with NMFS or the US Fish and Wildlife Service (depending on the species involved), must ensure that any action by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of designated critical habitat.

1.8.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), enacted to conserve and restore the nation’s fisheries, requires regional fisheries councils to reduce overfishing and bycatch and to describe and identify essential fish habitat (EFH), defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Under the act, Federal agencies must consult with the Secretary of Commerce regarding any activity, or proposed activity, authorized, funded, or undertaken by the agency that may adversely affect fisheries and fish habitats.

1.8.3 Executive Order 12866: Regulatory Planning and Review

Executive Order (EO) 12866, Regulatory Planning and Review, requires Federal agencies to follow “a program to reform and make more efficient the regulatory process.” During regulatory decision-making, Federal agencies are required to maximize net benefits after conducting quantitative and qualitative cost-benefit analyses, including the option of not regulating.

1.8.4 Regulatory Flexibility Act

According to the Regulatory Flexibility Act (RFA), Federal agencies must consider economic impacts that their rules may have on small entities, including small businesses. The agency must prepare an Interim and Final Regulatory Flexibility Analysis (IRFA/FRFA), unless the agency can certify that the rule would not have “a significant economic impact on a substantial number of small entities.” In an IRFA/FRFA, among other things, regulatory alternatives must be evaluated that achieve the objective of applicable statutes and that might minimize negative economic impacts on small entities.

2.0 ALTERNATIVES

NMFS published an advance notice of proposed rulemaking (ANPR) (NMFS, 2003a) proposing three options to estimate the T_{ins} for marine mammal stocks. T_{ins} essentially designates the maximum value that is considered an insignificant level of mortality and serious injury approaching a zero rate. The three options are the premises of the action alternatives addressed in this EA. The action alternatives (Alternatives 2, 3, and 4) define ZMRG in terms of T_{ins} .

In addition to the three action alternatives, this EA also analyzes the No Action Alternative according to CEQ's NEPA regulation guidelines. NMFS received suggestions for additional alternatives in comments on the ANPR (see Appendix A) and considered these additional alternatives but dismissed them from further analysis as discussed in section 2.3.

2.1 Alternative 1: No Action Alternative

The No Action Alternative would maintain status quo, thus not presenting any regulatory definition of ZMRG. As discussed in Chapter 1, although there is no regulatory definition of ZMRG, NMFS has been using the criterion of ten percent of a stock's PBR in SARs to evaluate whether incidental mortality and serious injury is at insignificant levels approaching a zero rate (see Table 2-1). NMFS will continue using this criterion in SARs until a final rule is completed defining ZMRG. However, ZMRG would continue to have no regulatory definition; thus, it would be unclear how ZMRG applies in the implementation of MMPA Section 118.

Table 2-1 delineates the four alternatives by showing how T_{ins} is calculated and how it relates to the PBR equation. Also, the last column in the table shows the amount of recovery delay under each alternative; the delay in recovery is determined using the assumption that all other factors contributing to a delay in the recovery of a stock are negligible. Other such factors may include natural events or other anthropogenic activities unrelated to commercial fishing operations. Therefore, the recovery delay in the table refers only to delays caused by incidental mortality and serious injury caused by commercial fisheries.

Table 2-1
Definitions of Insignificance Threshold (T_{ins})

	Calculation	Relative to PBR	Recovery Delay**
Alternative 1: No Action Alternative*	$T_{ins} = 0.1 (N_{min} * 0.5R_{max} * F_r)$	All stocks: 10% PBR	Healthy stocks: $\leq 10\%$ Stocks of threatened, depleted, or unknown status: $\leq 5\%$ Endangered stocks: $\leq 1\%$
Alternative 2: Preferred Alternative*	$T_{ins} = 0.1 (N_{min} * 0.5R_{max} * F_r)$	All stocks: 10% PBR	Healthy stocks: $\leq 10\%$ Stocks of threatened, depleted, or unknown status: $\leq 5\%$ Endangered stocks: $\leq 1\%$
Alternative 3	Cetaceans: $T_{ins} = 0.002 * N_{min}$ Pinnipeds: $T_{ins} = 0.006 * N_{min}$	Healthy stocks: 10% PBR Stocks of threatened, depleted, or unknown status: 50% PBR Endangered stocks: 100% PBR	All stocks: $\leq 10\%$
Alternative 4	Cetaceans: $T_{ins} = 0.001 * N_{min}$ Pinnipeds: $T_{ins} = 0.003 * N_{min}$	Healthy stocks: 5% PBR Stocks of threatened, depleted, or unknown status: 10% PBR Endangered stocks: 50% PBR	All stocks: $\leq 5\%$
* Alternatives 1 and 2 differ only with respect to regulatory power—ZMRG would remain undefined under Alternative 1 and would, therefore, lack clear application in a regulatory manner. ** This column refers to the recovery of a stock excluding all factors other than commercial fishing operations. Natural events or other anthropogenic factors could also contribute to delay in recovery.			

The No Action Alternative is not a feasible option because it would impede the ability of NMFS to apply the MMPA as provided in sections 1.1 and 1.6 of this EA, and it would not be consistent with the settlement agreement described in these sections. The No Action Alternative would not result in any regulatory definition of ZMRG. Although the No Action Alternative would not be consistent with the statement of purpose and need for this action, this alternative will be analyzed throughout the EA in order to provide a baseline to which the potential impacts of the various alternatives can be compared.

2.2 Action Alternatives

The action alternatives differ only in the way T_{ins} is calculated. The requirement remains the same—each action alternative defines ZMRG as the requirement for commercial fisheries to reduce incidental mortality and serious injury of marine mammals to levels equal to or below T_{ins} , as calculated on a stock-specific basis for marine mammals with incidental interactions with the commercial fishery under analysis. Because T_{ins} is calculated differently under each action alternative, there are differences in the number and types of fisheries resulting in marine mammal incidental mortality and serious injury greater than the T_{ins} under each alternative.

63 Additionally, all three action alternatives define “approaching zero” as infinitely nearing
64 zero, not equal to zero. That is, “approaching zero” means getting as close as possible to
65 zero. This does not mean that the target level, T_{ins} , is a moving target. Instead, T_{ins}
66 equals the target level that was calculated to be as close to zero as possible for a
67 particular stock.

68
69 “Rate” would be defined as the number of animals that die or are seriously injured each
70 year per 1,000 animals in that population. Because such a rate takes into account a
71 specific stock’s status as opposed to the status of the species as a whole, it best describes
72 incidental mortality and serious injury of a marine mammal stock regarding productivity
73 and biological significance (see section 1.3). Also, using units of animals per year
74 facilitates coordination of calculations of T_{ins} with the LOF. NMFS updates the LOF
75 annually based on any new information on each fishery’s level of incidental mortality and
76 serious injury compared to the PBR of each stock with which each fishery interacts; other
77 factors can also be involved in the process of updating the LOF.

78
79 ZMRG applies to all marine mammal stocks and all commercial fisheries. Based on the
80 1995 and 2004 proposed rules (NMFS, 1995b & 2004f), each action alternative follows a
81 two-tiered approach toward achieving ZMRG for each stock. ZMRG could be achieved
82 by meeting either of the two criteria. According to the first criterion, incidental mortality
83 and serious injury of one marine mammal stock would have to be insignificant (equal to
84 or less than T_{ins}) for all fisheries combined. The second criterion applies only to cases in
85 which all fisheries collectively exceed T_{ins} for a particular stock but individually do not
86 exceed T_{ins} for that stock. The second criterion of the two-tiered approach would require
87 each individual fishery to incur a level of incidental mortality and serious injury that is no
88 more than ten percent of T_{ins} . This is based on the theory that some fisheries would be
89 responsible for most of the incidental mortality and serious injury while others would be
90 responsible for insignificant amounts, that is, ten percent or less of the T_{ins} for that stock
91 (Barlow, et al., 1995). Each action alternative described in this EA follows this two-
92 tiered approach in determining whether ZMRG has been attained.

93
94 The T_{ins} calculation is based on the PBR calculation and, therefore, is subject to similar
95 limitations and assumptions. The logistic model that is the basis for T_{ins} and PBR
96 calculations may present assumptions that are not valid for all stocks, such as some
97 declining or very small stocks (Wade and Angliss, 1997; NMFS, 2004f). The model
98 assumes that populations would grow if human-caused mortality is below sustainable
99 levels. This assumption is false for some stocks, such as Hawaiian monk seals, that
100 experience declining populations without known incidental mortality and serious injury
101 levels high enough to cause the decline. Therefore, under each alternative, the
102 calculation of T_{ins} may not be applicable to every marine mammal stock. In such cases,
103 NMFS may have to do additional calculations or use a subjective adjustment to determine
104 the T_{ins} . For the purposes of this EA, default values will be used for $0.5R_{max}$ and F_r (see
105 section 1.4.1 for a description).

2.2.1 Alternative 2: Preferred Alternative

NMFS has identified Alternative 2 as the preferred alternative for the proposed action. Alternative 2 differs from the No Action Alternative only in that the ZMRG would have a regulatory definition and, therefore, have clear application in a regulatory manner. Alternative 2 defines T_{ins} as ten percent of the stock's PBR (see Table 2-1).

Alternative 2 would use varying recovery factors, and thus have different recovery delays, for stocks depending on their status (see Table 2-1). For the purposes of this EA, calculating recovery delay is based only on interactions with commercial fishing operations and does not include other factors such as natural events and other anthropogenic factors unrelated to commercial fisheries. For healthy stocks, there would be no more than a ten percent delay in recovery. For stocks of a threatened, depleted, or unknown status, there would be no more than a five percent delay in recovery. For endangered stocks, there would be no more than a one percent delay in recovery.

2.2.2 Alternative 3

Alternative 3 defines T_{ins} as the value that would not cause more than a ten percent delay in recovery of the marine mammal stock. Under Alternative 3, T_{ins} would be calculated differently for cetaceans and pinnipeds. Also, manatees and polar bears would be treated as cetaceans for the purposes of calculating T_{ins} under Alternative 3, and sea otters (excluding the California sea otter as provided in Section 118(a)(4) of the MMPA) would be treated as pinnipeds for the purposes of calculating T_{ins} under Alternative 3. This determination is based on similarity of life history characteristics and R_{max} values—manatees and polar bears are biologically similar to cetaceans while sea otters are biologically similar to pinnipeds (Barlow, et al., 1995). Under Alternative 3, T_{ins} for cetaceans would be 0.2 percent of N_{min} , and T_{ins} for pinnipeds would be 0.6 percent of N_{min} (see Table 2-1).

For endangered stocks, T_{ins} would be equal to PBR under Alternative 3. This is inconsistent with MMPA Section 118(f)(2), which provides that each TRP shall have a long-term goal (reaching ZMRG) separate from its short-term goal (reducing incidental mortality and serious injury to levels less than PBR). Therefore, Alternative 3 is not a feasible option for implementing the proposed action. However, analysis of Alternative 3 will be continued throughout this EA for purposes of comparison to the other alternatives.

2.2.3 Alternative 4

Alternative 4 defines T_{ins} as 0.1 percent of N_{min} for cetaceans or 0.3 percent of N_{min} for pinnipeds. This definition results in a T_{ins} value that would not cause more than a five percent delay in recovery of the marine mammal stock. Also, manatees and polar bears would be treated as cetaceans for the purposes of calculating T_{ins} under Alternative 4, and

sea otters (excluding the California sea otter as provided in Section 118(a)(4) of the MMPA) would be treated as pinnipeds for the purposes of calculating T_{ins} under Alternative 4. This determination is based on similarity of life history characteristics and R_{max} values—manatees and polar bears are biologically similar to cetaceans while sea otters are biologically similar to pinnipeds (Barlow, et al., 1995). Under Alternative 4, T_{ins} for cetaceans would be 0.1 percent of N_{min} , and T_{ins} for pinnipeds would be 0.3 percent of N_{min} (see Table 2-1).

2.3 Alternatives Considered but Dismissed from Further Analysis

Based on the 14 comment letters received in response to the ANPR (see Appendix A), five other alternatives were suggested. However, for various reasons, as stated below, the suggested alternatives have been dismissed from further analysis in this EA.

2.3.1 Alternative 5

Alternative 5 calls for the use of PBR and a technology standard to define ZMRG for stocks that are not endangered, threatened, or depleted. For endangered, threatened, or depleted stocks, Alternative 5 suggests using a more restrictive standard in addition to the PBR calculation to hasten the achievement of ZMRG for such stocks.

The MMPA and its legislative history are clear that a technology standard cannot define ZMRG because the ZMRG should be based on biological significance as discussed in section 1.3. The PBR and ZMRG should be calculated based on the biological significance of incidental mortality and serious injury to a marine mammal stock, not on a standard created to describe the effect of technology on the stock. For this reason, this EA does not further consider Alternative 5.

2.3.2 Alternative 6

Alternative 6 suggests a modification of the ANPR's Option 1 (the model for Alternative 2 in this EA). The modification consists of a second component that requires further reductions in mortality and serious injury for stocks with high PBR values. The comment did not include details on the calculation of the second component.

Alternative 6 is very similar to Alternative 4 in that the calculation of T_{ins} allows for further reductions in mortality and serious injury for stocks with high PBRs. For example, consider healthy stocks, which have high PBRs and a default F_r of 1.0. Under Alternative 6, a healthy stock would have a T_{ins} less than the T_{ins} calculated for Alternative 2 (Option 1 from the ANPR) when including the second component. Under

Alternative 4, a healthy stock would have a T_{ins} equal to half the value of T_{ins} calculated for Alternative 2.

For healthy stocks,

$$\text{Alternative 2: } T_{ins} = 0.1 (N_{min} * 0.5R_{max})$$

$$\text{Alternative 4: } T_{ins} = 0.05 (N_{min} * 0.5R_{max})$$

$$\text{Alternative 6: } T_{ins} = 0.1 (N_{min} * 0.5R_{max}) * x,$$

where x is the second component.

The comment proposing Alternative 6 did not include specific suggestions for the second component. As demonstrated above, Alternative 4 could produce a similar value for T_{ins} when compared to Alternative 6. For example, if x equals 0.5, Alternatives 4 and 6 would be identical. Because it is not possible to clearly distinguish Alternative 6 from Alternative 4 for stocks with high PBRs, Alternative 6 is not considered further in this EA.

2.3.3 Alternative 7

Alternative 7 consists of six major components:

- ZMRG would be equivalent to PBR.
- ZMRG would not apply to
 - robust stocks.
 - severely endangered stocks (i.e., $PBR \leq 5$).
 - stocks that are not under a MMPA management program.
- The Secretary would prioritize the application of the ZMRG for stocks with
 - small populations.
 - rapidly declining populations.
 - a level of incidental mortality and serious injury that has not dropped significantly within five years of TRP implementation.
- ZMRG definition must incorporate available technology and economic feasibility.
- The Secretary, in coordination with the TRT and the SRG, would review and determine the availability of technology and economic feasibility.
- If technology is deemed unavailable and a fishery is not achieving the ZMRG after five years under an approved TRP, the Secretary would work with fishery participants to develop and implement the appropriate technology.

NMFS currently prioritizes the development and implementation of TRPs for stocks with small populations, declining populations, or incidental mortality and serious injury exceeding that stock's PBR.

Elements of Alternative 7 are inconsistent with the MMPA, and therefore, this alternative is not considered further in this EA. Specifically, the MMPA mandates the application of the ZMRG to all commercial fisheries; this includes fisheries that interact with any marine mammal stock, regardless of its status. In addition, as discussed in section 2.2.2, MMPA Section 118(f)(2) provides that reducing incidental mortality and serious injury to levels less than PBR is a separate goal from reaching ZMRG; thus, ZMRG cannot be equivalent to PBR.

2.3.4 Alternative 8

Alternative 8 outlines a three-part approach to defining ZMRG. First, NMFS would adopt as the final rule the current criterion for determining ZMRG for purposes of SARs as described in Option 1 of the ANPR (the model for Alternative 2 in this EA). Second, if current levels of incidental mortality and serious injury from commercial fishing for a particular marine mammal stock are below the T_{ins} calculated under Alternative 2, the T_{ins} for that stock would be set no higher than the current level of incidental mortality and serious injury. Such a criterion would satisfy the congressional intent of minimizing incidental mortality and serious injury of marine mammals as much as possible. The third element of this alternative requires NMFS to revisit periodically the T_{ins} for marine mammal stocks in commercial fisheries with a non-zero rate of mortality and serious injury. The T_{ins} for such stocks would be gradually reduced to force technology to play a role in achieving the ZMRG.

Alternative 8 employs a constantly-moving target. The concept of ratcheting down the amount of allowable incidental mortality and serious injury is inconsistent with the MMPA's ZMRG criterion in Section 118(b)(2): fisheries that have achieved the target level are not required to reduce further incidental mortality and serious injury of marine mammals. If the target is continually being lowered, the fishermen would not have a clear, specific goal for reduction of incidental mortality and serious injury, which could create a disincentive for technological innovation designed to protect marine mammals. Such a scheme of ratcheting down the target precludes the quantification of and clear regulatory definition of ZMRG. Therefore, Alternative 8 is not considered further.

2.3.5 Alternative 9

One comment proposed that the ZMRG would not be achieved until incidental mortality and serious injury equals zero.

This alternative does not take into account that the ZMRG is a level *approaching* a zero rate, not an absolute value of zero. The MMPA provides exceptions to the general

prohibition of taking marine mammals that generally allow some level of incidental mortality and serious injury consistent with the purposes and policies of the Act, thus allowing for continued human activities in the marine environment, including commercial fishing operations. The statutory language of Section 118(b) of the MMPA specifically provides for reduction in levels of incidental mortality and serious injury to insignificant levels *approaching*, not *equal to*, zero. Additionally, Section 118(f) provides that a TRP's long-term goal (achieving ZMRG) should take into account fishery economics, availability of existing technology, and existing FMPs. Since Alternative 9 is inconsistent with the MMPA, it is not considered further in this EA.

3.0 EXISTING CONDITIONS

Marine mammal stocks are subjected to anthropogenic threats including fishery operations, ship strikes, pollution, and noise. Because the ZMRG applies only to US commercial fisheries that incidentally take marine mammals, this chapter has two main sections: the status of protected marine populations and a description of active US commercial fisheries.

3.1 Status of Protected Marine Populations

The following sections discuss the status of marine populations that are protected by the MMPA and/or the ESA.

3.1.1 Marine Mammals

The final 2002 SARs (NMFS, 2002a, 2002b, and 2002c) and the draft 2003 SARs (NMFS, 2003c) discuss comprehensively the status of marine mammal populations in US waters. The 2003 SARs are currently being finalized and are expected to be available to the public sometime in spring 2004. The information presented in the final 2002 SARs, draft 2003 SARs (NMFS, 2003c), and *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) are incorporated here by reference.

Depleted and ESA-listed Stocks

Table 3-1 lists all domestic depleted, threatened, and endangered marine mammal stocks as well as stocks that are candidates for ESA listing.

Recovery plans exist for the blue whale (NMFS, 1998a), the Hawaiian monk seal (NMFS, 1983), the humpback whale (NMFS, 1991a), the Northern right whale (NMFS, 1991b), and the Steller sea lion (NMFS, 1992). The recovery plans contain more current information on each species and are incorporated by reference.

Also, as required by the MMPA, a Conservation Plan exists for the North Pacific fur seal (NMFS, 1993) and is incorporated by reference.

Table 3-1
Domestic Depleted and ESA-listed or –Candidate Marine Mammal Stocks

Common Name	Scientific Name	Status*
Blue Whale	<i>Balaenoptera musculus</i>	E
Bowhead Whale	<i>Balaena mysticetus</i>	E, D
Caribbean Monk Seal	<i>Monachus tropicalis</i>	E
Coastal Spotted Dolphin	<i>Stenella attenuata graffmani</i>	D
Cook Inlet Beluga Whale	<i>Delphinapterus leucas</i>	D, C
Eastern Spinner Dolphin	<i>Stenella longirostris orientalis</i>	D
Fin Whale	<i>Balaenoptera physalus</i>	E
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	T
Hawaiian Monk Seal	<i>Monachus schauinslandi</i>	E, D
Humpback Whale	<i>Megaptera novaeangliae</i>	E
Bottlenose Dolphin (US mid-Atlantic coastal migratory stock)	<i>Tursiops truncatus</i>	D
Killer Whale (Eastern North Pacific Southern Resident stock)	<i>Orcinus orca</i>	D
North Atlantic Right Whale	<i>Balaena glacialis</i>	E
North Pacific Fur Seal	<i>Callorhinus ursinus</i>	D
Northeastern Offshore Spotted Dolphin	<i>Stenella attenuata</i>	D
Northern Sea Otter	<i>Enhydra lutris kenyoni</i>	C
Sei Whale	<i>Balaenoptera borealis</i>	E
Southern Sea Otter**	<i>Enhydra lutris nereis</i>	T
Sperm Whale	<i>Physeter macrocephalus</i>	E
Steller Sea Lion	<i>Eumetopias jubatus</i>	E, T
West Indian Manatee	<i>Trichechus manatus</i>	E
* E = endangered; T = threatened; C = candidate; D = depleted. ** The southern sea otter, also called the California sea otter, is exempt from MMPA Section 118. Sources: NMFS, 2004c; USFWS, 2004.		

3.1.2 Sea Turtles

All six sea turtles that occur in US waters are listed under the ESA (see Table 3-2) and have recovery plans, all of which were finalized between 1991 and 1998. Being caught incidentally in fishing gear is an unquantified, ongoing problem for sea turtles. Use of turtle excluder devices is required to help reduce sea turtle bycatch in some commercial fisheries. Habitat loss, egg poaching, marine debris, beach nourishment, and artificial lighting are also common threats to sea turtles.

Table 3-2
Sea Turtles that Occur in US Waters

Common Name	Scientific Name	Status*
Green Turtle	<i>Chelonia mydas</i>	E, T**
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	E
Kemp's Ridley Turtle	<i>Lepidochelys kempi</i>	E
Leatherback Turtle	<i>Dermochelys coriacea</i>	E
Loggerhead Turtle	<i>Caretta caretta</i>	T
Olive Ridley Turtle	<i>L. olivacea</i>	E, T**
* E = endangered; T = threatened. ** Status assigned according to population. Source: NMFS, 2004a.		

3.1.2.1 Green Turtle

The green turtle is a circumglobal species found in tropical and subtropical waters. Posthatchling and small juvenile green turtles reside in oceanic waters. Adults are predominantly tropical and spend most of their time in shallow, nearshore areas. However, they are known to undertake long oceanic migrations between nesting and foraging habitats.

All green turtle populations are threatened except the breeding populations off Florida and the Pacific coast of Mexico, which are endangered. Since the 1978 listing, the populations have not improved significantly (NMFS, 2004a). The green turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1991a, 1998a, and 1998b).

3.1.2.2 Hawksbill Turtle

Hawksbill sea turtles are found in tropical and subtropical seas of the Atlantic, Pacific, and Indian Oceans. They are found along the continental US coastline from Massachusetts southward, including all of the Gulf of Mexico coastal states; however, sightings north of Florida are rare. Like the green turtle, posthatchling hawksbills are pelagic, and adults return to a variety of shallow coastal habitats including rocky outcrops, coral reefs, lagoons on oceanic islands, and estuaries.

The hawksbill has been endangered since its 1970 listing (NMFS, 2004a). The hawksbill turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1993 and 1998c).

3.1.2.3 Kemp's Ridley Turtle

The Kemp's ridley turtle does not have as widespread a distribution as other sea turtles. Adults are generally restricted to the coastal areas of Gulf of Mexico and the northwestern Atlantic Ocean. Nesting occurs primarily on a single beach near Rancho

Nuevo in southern Tamaulipas, which is on the northeastern coast of Mexico. There are a few additional nests in Texas, Florida, South Carolina, and North Carolina.

The Kemp's ridley turtle has been endangered since its listing in 1970. After long periods of decline, today the population appears to be in the early stages of recovery due to protective measures (NMFS, 2004a). The Kemp's ridley turtle recovery plan contains more current information and is incorporated by reference (NMFS and USFWS, 1992b).

3.1.2.4 Leatherback Turtle

The leatherback is the largest living turtle (NMFS, 2004a). Leatherback turtles are distributed worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. Adult leatherbacks are highly migratory and are believed to be the most pelagic of all sea turtles. Females are often observed near the edge of the continental shelf but do not nest frequently in the US.

Leatherbacks were listed as endangered in 1970. The leatherback turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1992a and 1998d).

3.1.2.5 Loggerhead Turtle

Loggerhead sea turtles are found in tropical, subtropical, and temperate waters throughout the world. The loggerhead is the most abundant sea turtle in US coastal waters. They frequent continental shelves, bays, estuaries, and lagoons.

Loggerheads were listed as threatened in 1978, and their status has not changed. It appears that the nesting populations in South Carolina and Georgia may be declining while the Florida nesting population seems to be stable. However, NMFS is currently considering the reclassification of the Northern and Florida panhandle subpopulations as endangered (NMFS, 2004a). The loggerhead turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1991b and 1998e).

3.1.2.6 Olive Ridley Turtle

Olive ridley turtles are predominantly tropical and are more abundant in the Atlantic Ocean than in the Pacific Ocean. The olive ridley turtles form huge nesting aggregations (often known as "arribadas") at several beaches along the Mexican Pacific coast with the largest concentration at La Escobilla (NMFS, 2004a). In the non-reproductive stages, olive ridleys are migratory and tend to remain in the eastern Pacific pelagic habitats. Distribution is similar to that of the leatherbacks.

In 1978 the olive ridley turtle was listed as endangered for the Mexican nesting population and as threatened for all other populations. Since the listing, abundance has declined, and it has been recommended that the Western Atlantic population be reclassified as endangered (NMFS, 2004a). The olive ridley turtle recovery plan contains

more current information on each species and is incorporated by reference (NMFS and USFWS, 1998f).

3.1.3 Sea Birds

Sea birds' normal habitat and food source are the sea, whether they utilize coastal waters, offshore waters, or pelagic waters (Harrison, 1983). Birds of this definition include loons (Gaviiformes), grebes (Podicipediformes), albatrosses, fulmars, prions, petrels, shearwaters, storm-petrels, diving petrels (Procellariiformes), pelicans, boobies, gannets, cormorants, shags, frigatebirds, tropicbirds, anhingas (Pelecaniformes), shorebirds, skuas, jaegers, gulls, terns, auks, and puffins (Charadriiformes).

Table 3-3 lists the sea birds that are listed under the ESA. The *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) contains much data on sea birds, which are incorporated by reference.

Table 3-3
ESA-listed Sea Birds

Common Name	Scientific Name	Status*
Brown Pelican	<i>Pelecanus occidentalis</i>	E, R**
California Least Tern	<i>Sterna antillarum browni</i>	E
Hawaiian Dark-rumped Petrel	<i>Pterodroma phaeopygia sandwichensis</i>	E
Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	E
Least Tern	<i>Sterna antillarum</i>	E
Newell's Townsend's Shearwater	<i>Puffinus auricularis newelli</i>	T
Roseate Tern	<i>Sterna dougallii dougallii</i>	E, T**
Short-tailed Albatross	<i>Phoebastria albatrus</i>	E
* E = endangered; T = threatened; C = candidate; R = recovered (delisted). ** Status assigned according to population. Sources: USFWS, 2004.		

3.1.4 Anadromous and Marine Fishes

Table 3-4 shows all anadromous and marine fishes that are endangered species, threatened species, or candidate species for listing under the ESA. No catadromous fishes are listed or candidates for listing under the ESA.

Recovery plans exist for the shortnose and Gulf sturgeons and are incorporated by reference (NMFS 1998b; USFWS and Gulf States Marine Fisheries Commission, 1995).

Table 3-4
Endangered, Threatened, and Candidate Anadromous and Marine Fishes

Common Name	Scientific Name	Status*
Alabama Shad	<i>Alosa alabamae</i>	C
Atlantic Salmon	<i>Salmo salar</i>	E
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	C
Barndoor Skate	<i>Raja laevis</i>	C
Bocaccio	<i>Sebastes paucispinis</i>	C
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	E, T, C**
Chum Salmon	<i>Oncorhynchus keta</i>	T
Coho Salmon	<i>Oncorhynchus kisutch</i>	T, C**
Dusky Shark	<i>Carcharhinus obscurus</i>	C
Goliath Grouper	<i>Epinephelus itajara</i>	C
Green Sturgeon	<i>Acipenser medirostris</i>	C
Gulf Sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T
Key Silverside	<i>Menidia conchorum</i>	C
Large-tooth Sawfish	<i>Pristis perotteti</i>	C
Mangrove Rivulus	<i>Rivulus marmoratus</i>	C
Nassau Grouper	<i>Epinephelus striatus</i>	C
Night Shark	<i>Carcharhinus signatus</i>	C
Opossum Pipefish	<i>Microphis brachyurus</i>	C
Saltmarsh Topminnow	<i>Fundulus jenkinsi</i>	C
Sandtiger Shark	<i>Odontaspis Taurus</i>	C
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	E
Smalltooth Sawfish	<i>Pristis pectinata</i>	E
Sockeye Salmon	<i>Oncorhynchus nerka</i>	E, T, C**
Speckled Hind	<i>Epinephelus drummondhayi</i>	C
Steelhead Trout	<i>Oncorhynchus mykiss</i>	E, T, C**
Warsaw Grouper	<i>Epinephelus nigritus</i>	C
White Marlin	<i>Tetrapturus albidus</i>	C

* E = endangered; T = threatened; C = candidate.
 ** Status assigned according to population.
 Sources: NMFS, 2004b.

3.2 Description of Active US Commercial Fisheries

The *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) provides substantial information on US commercial fisheries so the information in that EA is incorporated by reference. The draft 2003 SARs (NMFS, 2003c) and the 2003 LOF (NMFS, 2003b) include more recent data and are also incorporated by reference.

According to the 2003 LOF, of the 197 active US commercial fisheries, there are six fisheries in Category I, 34 in Category II, and 157 in Category III (see Table 3-5).

Table 3-5
Classified Active US Commercial Fisheries

Region	Category I	Category II	Category III
Atlantic	5	14	51
Pacific/Alaska*	1	20	106
Total	6	34	157
* While the SARs separate fisheries into Pacific and Alaska regions, the LOF combines the two regions. Therefore, Pacific and Alaska fisheries are combined in this table. Source: NMFS, 2003b.			

Chapter 4 analyzes only those fisheries that exceed the T_{ins} as calculated under each alternative; the estimated incidental mortality and serious injury data from the above-referenced reports for such fisheries appear in Chapter 4 along with the analysis.

3.3 TRTs and TRPs

To date, only the Atlantic Offshore Cetacean TRT has been convened and was later disbanded. It was formed to address take reduction of North Atlantic right whales, humpback whales, sperm whales, beaked whales, pilot whales, common dolphins, bottlenose dolphins, and spotted dolphins in the Atlantic pelagic driftnet, pair trawl, and pelagic longline fisheries. Since the TRT was convened in 1996, the driftnet fishery was closed, the pair trawl fishery remained inactive, and the longline fishery changed substantially to reduce other bycatch. Therefore, NMFS disbanded the TRT in 2001.

NMFS has formed five currently-operating TRTs: Pacific Offshore Cetacean TRT, Mid-Atlantic Harbor Porpoise TRT, Gulf of Maine Harbor Porpoise TRT, Atlantic Large Whale TRT, and Bottlenose Dolphin TRT. NMFS has implemented TRPs for each TRT except the Bottlenose Dolphin TRT; the agency is currently drafting a proposed rule to implement a Bottlenose Dolphin TRP.

NMFS also has plans to convene a TRT in 2005 to address incidental mortality and serious injury of marine mammals in the Atlantic pelagic longline fishery (primarily focusing on common dolphins and pilot whales) and has plans to convene a TRT in 2006 to address incidental mortality and serious injury of marine mammals in the Atlantic trawl fisheries. Both future TRTs are also part of the April 2003 settlement agreement (*Center for Biological Diversity, et al v. National Marine Fisheries Service*, Case No. C-02-3901-SC (N.D. Cal. 2003)).

3.3.1 Pacific Offshore Cetacean TRT

The Pacific Offshore Cetacean TRT was formed in February 1996 to reduce incidental mortality and serious injury of beaked whales, pilot whales, pygmy sperm whales, sperm whales, and humpback whales in the swordfish/shark drift gillnet fishery off the coasts of California and Oregon. The TRP was implemented on October 30, 1997. The plan has

three main requirements: pingers must be on all nets, nets must be set at a minimum of 36 feet below the water's surface, and vessel operators must attend educational workshops after notification from NMFS. A modification made on January 1, 1999 requires longer attachment lanyards to increase safety of pinger deployment. (NMFS, March 2004e)

3.3.2 Mid-Atlantic Harbor Porpoise TRT

The Mid-Atlantic Harbor Porpoise TRT, first convened in February 1997, addresses incidental mortality and serious injury of harbor porpoise in the mid-Atlantic coastal gillnet fishery. In December 1997, based on new bycatch and fishery data, NMFS integrated the Mid-Atlantic Harbor Porpoise TRT report and the Gulf of Maine Harbor Porpoise TRT report, resulting in one harbor porpoise TRP for the Atlantic coast. NMFS implemented the harbor porpoise TRP on January 1, 1999. The TRP consists of time and area closures unless gear meets certain specifications, some complete time and area closures that apply to any gillnet fishing, and required pingers on sink gillnets in certain times and areas. (NMFS, March 2004e)

3.3.3 Gulf of Maine Harbor Porpoise TRT

The Gulf of Maine Harbor Porpoise TRT first met in February 1996 to address incidental mortality and serious injury of the harbor porpoise in the Northeast sink gillnet fishery. In December 1997, based on new bycatch and fishery data, NMFS integrated the Mid-Atlantic Harbor Porpoise TRT report and the Gulf of Maine Harbor Porpoise TRT report, resulting in one harbor porpoise TRP for the Atlantic coast. NMFS implemented the harbor porpoise TRP on January 1, 1999. The TRP consists of time and area closures unless gear meets certain specifications, some complete time and area closures that apply to any gillnet fishing, and required pingers on sink gillnets in certain times and areas. (NMFS, March 2004e)

3.3.4 Atlantic Large Whale TRT

The Atlantic Large Whale TRT was established in August 1996 to design a TRP for North Atlantic right whales, humpback whales, and fin whales affected by the Southeastern US shark gillnet fishery, the Northeast/Mid-Atlantic lobster trap/pot fishery, the Mid-Atlantic coastal gillnet fishery, and the Northeast sink gillnet fishery. The TRP was first put into effect in 1997 and has been modified several times, most recently in August 2003. The TRP includes gear restrictions, research recommendations, time and area closures, outreach and education recommendations, and a disentanglement program. The TRT most recently met in February 2004. Currently, NMFS is preparing a draft environmental impact statement to analyze alternatives for gear modification and improved time and area management. (NMFS, 2004d)

3.3.5 Bottlenose Dolphin TRT

The Bottlenose Dolphin TRT was convened in November 2001 to address incidental mortality and serious injury of Western North Atlantic coastal bottlenose dolphins in the Mid-Atlantic and Southeast gillnet, beach seine, stop net, haul seine, and trap/pot fisheries. Most recently, the TRT met in April 2003 and submitted recommendations, on which NMFS is currently basing preparation of a proposed rule. The recommendations include temporal restrictions, proximity and gear-marking requirements, net length restrictions, and gear workshops. (NMFS, March 2004e)

4.0 ENVIRONMENTAL IMPACTS

The environmental impacts of all major Federal actions, including agency rules, must be considered prior to implementation to determine whether they would significantly affect the quality of the human environment. This chapter describes the anticipated direct, indirect, and cumulative environmental and socioeconomic impacts of the No Action and action alternatives. Although not a reasonable alternative, the No Action Alternative provides the baseline against which to compare the impacts of the proposed action.

This EA analyzes the impacts of several alternatives that define the ZMRG. Because the Federal action analyzed in this EA is rulemaking, it is difficult to predict how the rule will be applied. The TRPs will include measures designed for fisheries to achieve the ZMRG. Because those measures have not yet been designed, the impacts identified in this chapter may seem general in nature. However, it is important to note that TRPs would require their own NEPA analysis before being implemented. Therefore, specific impacts would be identified during the TRP NEPA processes according to the specific provisions of the TRP that would directly affect protected marine populations and US commercial fisheries.

4.1 Impacts on Protected Marine Populations

This section discusses the potential impacts of the alternatives on protected marine populations: sea turtles, sea birds, fishes, and marine mammals.

4.1.1 Sea Turtles, Sea Birds, and Salmonids and Other Protected Fishes

Under the No Action Alternative, the lack of a regulatory ZMRG definition could result in moderate, negative impacts to marine mammal stocks as discussed below, and this should result in even fewer negative, indirect impacts to sea turtles, sea birds, and salmonids and other protected fishes because the ZMRG does not address species other than marine mammals. Such negative, indirect impacts would be in the form of bycatch from commercial fishery operations. A lack of measures to protect marine mammals would not result in indirect bycatch reduction of other marine species.

Under each action alternative, potential impacts on sea turtles, sea birds, and salmonids and other protected fishes would be minor, indirect, and positive. To meet the long-term goal of reducing incidental mortality and serious injury of marine mammals, a specific TRP may require gear modifications or some other technique that may benefit bycatch reduction of these other marine species as well.

4.1.2 Marine Mammals

For the purposes of this EA, if data exist for marine mammals, the data are assumed to be reliable (unless specified in the SARs to be unreliable), and T_{ins} is calculated under each alternative. During implementation of the ZMRG provision in cases with unreliable estimates, NMFS may consider other measures to define the target level for such stocks.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate N_{min}), T_{ins} cannot be calculated for such stocks under any alternative. Also, some stocks do not have incidental mortality estimates, which prevents calculation to determine whether incidental mortality and serious injury exceed T_{ins} . Stocks that lack N_{min} , mortality estimates, or both (see Table 4-1) have not been included in the analysis although several of them have experienced incidental mortality and serious injury. Therefore, it cannot be assumed that fisheries achieve ZMRG for such stocks under any alternative. Such stocks would be treated as experiencing incidental mortality and serious injury exceeding insignificant levels approaching zero until enough data are collected to estimate the N_{min} and mortality level. (Note: According to the SARs, some stocks are thought to have little or no interaction with fisheries. Such stocks are not included in Table 4-1.)

Of the 19 stocks with insufficient data, seven are in the Alaska region, five are in the Atlantic region, and seven are in the Pacific region. Only the fin whale, sperm whale, and Hawaiian monk seal stocks in Table 4-1 are endangered. There are no other known depleted or ESA-listed stocks in Table 4-1.

Table 4-1
Marine Mammal Stocks with Insufficient Data to
Determine ZMRG Achievement*

Region	Species	Stock	Estimated Annual Fishery Mortality	N _{min}
Alaska	Bearded Seal	Alaska	1	Unavailable
Alaska	Fin Whale	Northeast Pacific	0.8	Unavailable
Alaska	Minke Whale	Alaska	0.3	Unavailable
Alaska	Pacific White-Sided Dolphin	Central North Pacific (CNP)	4	Outdated**
Alaska	Ribbon Seal	Alaska	1	Unavailable
Alaska	Sperm Whale	North Pacific	0.4	Unavailable
Alaska	Spotted Seal	Alaska	3	Unavailable
Atlantic	Bottlenose Dolphin	Gulf of Mexico Bay, Sound, & Estuarine	Unavailable***	3933
Atlantic	Gray Seal	Western North Atlantic (WNA)	131	Unavailable
Atlantic	Harp Seal	WNA	109	Unavailable
Atlantic	Hooded Seal	WNA	16	Unavailable
Atlantic	Spinner Dolphin	WNA	0.31	Unavailable
Pacific	Hawaiian Monk Seal	Hawaii	Unavailable	1378
Pacific	Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Melon-Headed Whale	Hawaii	Unavailable	81
Pacific	Pygmy Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Risso's Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Rough-Toothed Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Striped Dolphin	Hawaii	Unavailable	52

* This table excludes stocks that have an estimated mortality of zero regardless of an unavailable N_{min}.
 ** According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N_{min} was 26,880 in 1993. Unless the population has decreased substantially, it is highly likely that this stock would experience a level of incidental mortality and serious injury less than T_{ins} under all alternatives.
 *** While no mortality estimates are available for this stock, stranding data indicate that incidental fishery interactions result in mortality and serious injury.
 Source: NMFS, 2003c.

4.1.2.1 Alternative 1: No Action Alternative

The No Action Alternative would not provide a regulatory definition of ZMRG. However, NMFS would continue to use the criterion of ten percent of a stock's PBR to evaluate whether incidental mortality and serious injury is at insignificant levels approaching a zero rate for purposes of the SARs, which are informational reports.

Without a defined ZMRG, it is possible that some marine mammal stocks may not be protected to the full extent as provided in Section 118 of the MMPA. NMFS must review and report to Congress on the progress of all commercial fisheries, by fishery, toward reducing incidental mortality and serious injury to ZMRG. NMFS cannot reasonably

conduct this review and report without a definition of ZMRG. The report could track reductions in mortality, but it could not determine the progress of fisheries toward a target level without a defined ZMRG. In addition, TRTs and NMFS would experience difficulty in establishing the amount of incidental mortality and serious injury to reduce in the long term without a defined ZMRG. This could result in moderate, negative impacts to marine mammal stocks if TRTs decide that the long-term goal of reducing incidental mortality and serious injury has been met based on various criteria chosen by TRT members as opposed to a standard, regulatory definition of ZMRG; this may not result in sufficient reductions. On the other hand, the No Action Alternative could also result in overprotection if the ZMRG is interpreted as having a target equal to zero.

Although the No Action Alternative would not define ZMRG, the data describing incidental mortality and serious injury for this alternative are identical to those for Alternative 2 and are only analyzed in section 4.1.2.2. Although the No Action Alternative would not have a formal T_{ins} , for the purposes of comparison of alternatives in this EA, the calculation of T_{ins} would be the same for both alternatives as NMFS would likely continue to use ten percent of PBR as the guideline for an undefined ZMRG under the No Action Alternative. The only difference between the No Action Alternative and Alternative 2 is that Alternative 2 would provide a regulatory definition of ZMRG thus quantifying a TRP's long-term goal.

Depleted and ESA-listed Stocks

As mentioned above, analysis of effects on depleted and ESA-listed stocks under the No Action Alternative would be the same as that under Alternative 2, with the exception that the No Action Alternative would not result in a regulatory definition of ZMRG. The detailed discussion follows in section 4.1.2.2.

4.1.2.2 Alternative 2: Preferred Alternative

Although similar to the No Action Alternative, Alternative 2 would have fewer adverse effects and more positive impacts because the ZMRG would have a regulatory definition and likely lead to greater reduction of incidental mortality and serious injury. The same procedure would be used to determine which stocks would be under consideration for convening TRTs.

Of all the action alternatives, Alternative 2 is protective of the greatest number of marine mammal stocks (see Table 4-2); implementation of Alternative 2 would result in 34 stocks with incidental mortality and serious injury exceeding T_{ins} . Therefore, relative to the other alternatives, Alternative 2 would have the greatest positive impacts by indicating the need for the greatest reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries. Also, when compared to the other alternatives, Alternative 2 is the most protective of endangered stocks because it would allow endangered stocks only a one-percent recovery delay (see discussion of recovery delay in Chapter 2 and see Table 2-1). Alternative 2, like Alternative 4, is more protective of stocks of threatened, declining, or unknown status than Alternative 3.

Alternative 2 would result in substantial positive impacts to marine mammals, and NMFS has selected Alternative 2 as the preferred alternative.

Table 4-2
Summary: Marine Mammal Stocks with
Incidental Mortality and Serious Injury Exceeding T_{ins}

Region	Alternative 1: No Action ¹	Alternative 2	Alternative 3	Alternative 4
Alaska	5	5	1	4
Atlantic	14	14	11	13
Pacific	12	12	7	11
TOTAL	31	31	19	28
¹ For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR). Source: NMFS, 2003c.				

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *less than or equal to ten percent of PBR*. Ambiguity concerning ZMRG would be dissolved. While this would not necessarily generate more resources for NMFS to convene TRTs, it would clarify which fisheries have met the ZMRG. This could result in substantial, positive impacts to marine mammal stocks if TRTs design TRPs that effectively meet the ZMRG.

Alaska Region

Under Alternative 2, five stocks in the Alaska region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-3.

Table 4-3
Marine Mammal Stocks in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	CNP	4.2	0.74	7.4
Humpback whale	Western North Pacific (WNP)	0.8	0.07	0.7
Killer whale	Eastern North Pacific (ENP) Northern Resident	1.4	0.72	7.2
Killer whale	ENP Transient	0.6	0.28	2.8
Steller Sea Lion	Western US	25.9	20.9	209
Source: NMFS, 2003c.				

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 0.35, which is the aggregation's T_{ins} under Alternative 2.

Atlantic Region

Under Alternative 2, 14 stocks in the Atlantic region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-4.

Table 4-4
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	36.4	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.9	29
Bottlenose Dolphin	WNA (coastal)*	257	15.16	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.9	249
Common Dolphin	WNA	190	22.7	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.59	5.9
Fin Whale	WNA	0.6	0.47	4.7
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.7	747
Harbor Seal	WNA	955	549.3	5493
Humpback Whale	Gulf of Maine	1.6	0.13	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	10.8	108
Pygmy Sperm Whale	WNA	6	0.37	3.7
Risso's Dolphin	WNA	51	22	220
<p>* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.</p> <p>** Due to recent population decline of this endangered species, its PBR and T_{ins} are zero.</p> <p>*** Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.</p> <p>Source: NMFS, 2003c.</p>				

Pacific Region

Under Alternative 2, 12 stocks in the Pacific region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-5.

Table 4-5
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	833.3	8333
False Killer Whale	Hawaii	4.6-6.9*	0.08	0.8
Fin Whale	California/Oregon/Washington (CA/OR/WA)	1	0.51	5.1
Harbor Porpoise	Monterey Bay	3	1.1	11
Harbor Porpoise	Morro Bay	4.8	0.7	7
Harbor Porpoise	Washington Inland Waters	15.2	2	20
Harbor Seal	California	433	154.3	1543
Humpback Whale	ENP	≥ 0.8	0.135	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.4	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.119	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.3	13
Sperm Whale	CA/OR/WA	1	0.18	1.8

* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
Source: NMFS, 2003c.

Depleted and ESA-listed Stocks

Alternative 2 is the only action alternative that would protect stocks to different degrees according to their status as demonstrated by different recovery delays (see Chapter 2 discussion and Table 2-1). While Alternative 2 uses ten percent of PBR as the T_{ins} for all stocks, F_r (of the PBR equation) can vary for each stock according to stock status. As a stock's population status declines, the stock's F_r decreases, thus making T_{ins} lower in value. Therefore, Alternative 2 is the only action alternative that would give increased protection to endangered stocks. Alternative 2 would allow a recovery delay (using the assumption that other causes of recovery delay are negligible; see discussion in Chapter 2) of less than or equal to one percent for endangered stocks (see Table 2-1), which is the shortest allowable delay in recovery for any stock under any alternative. Regarding protection of threatened stocks, depleted stocks, or stocks of unknown status, Alternative 2, like Alternative 4, would be more protective than Alternative 3. Finally, Alternative 2, like Alternative 3, would be less protective of healthy stocks than Alternative 4.

Implementation of Alternative 2 would result in the following ten depleted or ESA-listed stocks with incidental mortality and serious injury exceeding T_{ins} :

- *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- *Endangered* Steller sea lion (Western US stock).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* fin whale (WNA and CA/OR/WA stocks).
- *Endangered* North Atlantic right whale (WNA stock).
- *Endangered* sperm whale (CA/OR/WA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

4.1.2.3 Alternative 3

Of all the alternatives, Alternative 3 protects the fewest marine mammal stocks (see Table 4-2); implementation of Alternative 3 would result in 22 stocks with incidental mortality and serious injury exceeding T_{ins} . Therefore, Alternative 3 would have the fewest positive impacts on the reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries.

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *a level causing less than a ten percent delay in recovery* (see Table 2-1). Ambiguity concerning ZMRG would be dissolved. While this would not necessarily generate more resources for NMFS to convene TRTs, it would clarify which fisheries have met the ZMRG. This could result in moderate, positive impacts to marine mammal stocks if TRTs design a TRP that effectively meets the ZMRG. However, under Alternative 3, ZMRG would be protective of fewer stocks than the current interpretation (ten percent of PBR) so it is more likely that Alternative 3 would result in moderate, negative impacts to stocks by requiring fewer reductions in incidental mortality and serious injury than the other alternatives. Existing TRTs would have less incentive to be as protective of marine mammals.

Alaska Region

Under Alternative 3, one stock in the Alaska region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-6.

Table 4-6
Marine Mammal Stock in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	WNP	0.8	0.734	0.7

Source: NMFS, 2003c.

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 1.736, which is the aggregation's T_{ins} under Alternative 3.

Atlantic Region

Under Alternative 3, 11 stocks in the Atlantic region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-7.

Table 4-7
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	75.81	364
Bottlenose Dolphin	Western Gulf of Mexico	13	5.876	29
Bottlenose Dolphin	WNA (coastal)*	257	30.27	151.6
Common Dolphin	WNA	190	47.31	227
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	149.39	747
Harbor Seal	WNA	955	549.276	5493
Humpback Whale	Gulf of Maine	1.6	1.294	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	22.686	108
Pygmy Sperm Whale	WNA	6	0.746	3.7
Risso's Dolphin	WNA	51	45.832	220

* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.

** Due to recent population decline of this endangered species, the PBR and T_{ins} are zero.

*** Species-specific estimates are not available as mortality data do not distinguish between the two species.

Calculations shown represent the entire genus of the WNA.

Source: NMFS, 2003c.

Pacific Region

Under Alternative 3, seven stocks in the Pacific region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-8.

Table 4-8
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	833.286	8333
False Killer Whale	Hawaii	4.6-6.9*	0.166	0.8
Harbor Porpoise	Monterey Bay	3	2.284	11
Harbor Porpoise	Morro Bay	4.8	1.338	7
Harbor Porpoise	Washington Inland Waters	15.2	5.09	20
Harbor Seal	California	433	154.32	1543
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.298	1.19
* The estimated mortality for this species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured. Source: NMFS, 2003c.				

Depleted and ESA-listed Stocks

Alternative 3 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a ten-percent delay in recovery resulting from interactions with commercial fisheries. It would be the least protective alternative of all stocks, generally; however, it would be equally as protective of healthy stocks as Alternative 2.

Implementation of Alternative 3 would result in incidental mortality and serious injury exceeding T_{ins} for the following four depleted or ESA-listed stocks:

- *Endangered* humpback whale (WNP and Gulf of Maine stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

4.1.2.4 Alternative 4

Alternative 4 is slightly less protective of marine mammals than Alternative 2 and moderately more protective than Alternative 3 (see Table 4-2); implementation of Alternative 4 would result in 31 stocks with incidental mortality and serious injury exceeding T_{ins} . Therefore, Alternative 4 would have moderate, positive impacts on the reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries.

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *a level causing less than a five percent delay in recovery* (see Table 2-1). Ambiguity concerning ZMRG would be dissolved. While this would not generate more resources for NMFS to convene TRTs, it would clarify which stocks have met the ZMRG. This could result in substantial, positive impacts to marine mammal stocks if TRTs design a TRP that effectively meets the ZMRG.

However, generally under Alternative 4, ZMRG would be protective of slightly fewer stocks than the current interpretation (ten percent of PBR) so it is more likely that Alternative 4 would result in minor, negative impacts to stocks by requiring fewer efforts to reduce incidental mortality and serious injury. Under Alternative 4, existing TRTs would have less incentive than under Alternative 2 to be as protective of marine mammals. An exception to this generality is that Alternative 4 is more protective of healthy, robust stocks than the other alternatives. For example, under Alternative 4 the T_{ins} for the healthy, robust California sea lion stock is about half the value of that under the other alternatives.

Alaska Region

Under Alternative 4, four stocks in the Alaska region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-9.

Table 4-9
Marine Mammal Stocks in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	CNP	4.2	3.698	7.4
Humpback whale	WNP	0.8	0.367	0.7
Killer whale	ENP Northern Resident	1.4	0.723	7.2
Killer whale	ENP Transient	0.6	0.346	2.8
Source: NMFS, 2003c.				

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 0.868, which is the aggregation's T_{ins} under Alternative 4.

Atlantic Region

Under Alternative 4, 13 stocks in the Atlantic region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-10.

Table 4-10
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	37.904	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.938	29
Bottlenose Dolphin	WNA (coastal)*	257	15.14	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.897	249
Common Dolphin	WNA	190	23.655	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.587	5.9
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.695	747
Harbor Seal	WNA	955	274.638	5493
Humpback Whale	Gulf of Maine	1.6	0.647	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	11.343	108
Pygmy Sperm Whale	WNA	6	0.373	3.7
Risso's Dolphin	WNA	51	22.916	220

* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.

** Due to recent population decline of this endangered species, the PBR and T_{ins} are zero.

*** Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.

Source: NMFS, 2003c.

Pacific Region

Under Alternative 4, 11 stocks in the Pacific region would have incidental mortality and serious injury greater than T_{ins} as shown in Table 4-11.

Table 4-11
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4.

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	416.643	8333
False Killer Whale	Hawaii	4.6-6.9	0.083	0.8
Harbor Porpoise	Monterey Bay	3	1.142	11
Harbor Porpoise	Morro Bay	4.8	0.669	7
Harbor Porpoise	Washington Inland Waters	15.2	2.545	20
Harbor Seal	California	433	77.16	1543
Humpback Whale	Eastern North Pacific	≥ 0.8	0.681	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.417	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.149	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.313	13
Sperm Whale	CA/OR/WA	1	0.885	1.8

* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
Source: NMFS, 2003c.

Depleted and ESA-listed Stocks

Alternative 4 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a five-percent delay in recovery resulting from interactions with commercial fisheries. It would be the most protective alternative of all stocks with the exception of endangered stocks, which would be most protected by Alternative 2.

Implementation of Alternative 4 would result in incidental mortality and serious injury exceeding T_{ins} for the following seven depleted or ESA-listed stocks:

- *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).
- *Endangered* sperm whale (CA/OR/WA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

4.2 Impacts on US Commercial Fisheries

This section analyzes the impacts of the alternatives on active US commercial fisheries. Because the TRP provisions cannot be predicted, no data exist to quantitatively describe the socioeconomic impacts of each alternative on fisheries. Therefore, this section consists of mostly qualitative socioeconomic analysis. Also, this section only analyzes commercial fisheries that would fail to meet the ZMRG for various stocks under each alternative. Although not mentioned in this EA, other fisheries are also responsible for incidental mortality and serious injury of marine mammals; however, their levels of incidental mortality and serious injury are considered insignificant (less than or equal to T_{ins}) under each alternative.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate N_{min}), T_{ins} cannot be calculated for such stocks under any alternative. Also, some fisheries lack incidental mortality estimates for stocks with which they interact, which prevents calculation to determine whether incidental mortality and serious injury exceed T_{ins} . Stocks that lack N_{min} , mortality estimates, or both have not been included in the analysis although several of them have experienced incidental mortality and serious injury by various fisheries (see Table 4-12; it is probable that other unidentified commercial fisheries, not listed in the table, are also responsible for incidental interactions with marine mammals.). Therefore, it cannot be assumed that such fisheries achieve the ZMRG under any alternative. However, these fisheries may still be categorized in the LOF based on: fishing techniques, gear used, methods to deter marine mammal, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

Table 4-12
Commercial Fisheries with Insufficient Species-Specific Data to
Determine ZMRG Achievement

Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N _{min}
Alaska	Bering Sea/Aleutian Islands (BSAI) Groundfish Trawl	3	Bearded Seal (Alaska)	0.6	Unavailable
			Fin Whale (Northeast Pacific)	0.6	Unavailable
			Minke Whale (Alaska)	0.3	Unavailable
			Ribbon Seal (Alaska)	0.2	Unavailable
			Spotted Seal (Alaska)	1	Unavailable
Alaska	BSAI Groundfish Longline	3	Pacific White-Sided Dolphin (CNP)	0.8	Outdated*
Alaska	Bristol Bay Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.75	Outdated*
			Spotted Seal (Alaska)	≥ 1.5	Unavailable
Alaska	Prince William Sound Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 1.25	Outdated*
Alaska	Southeast Alaska Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.25	Outdated*
Alaska	Gulf of Alaska Groundfish Longline	3	Sperm Whale (North Pacific)	0.4	Unavailable
Atlantic	Gulf of Mexico Gillnet**	2	Bottlenose Dolphin (Gulf of Mexico Bay, Sound, & Estuarine)	Unavailable	3933
Atlantic	Northeast Sink Gillnet	1	Gray Seal (WNA)	131	Unavailable
			Harp Seal (WNA)	96	Unavailable
			Hooded Seal (WNA)	16	Unavailable
Atlantic	Mid-Atlantic Coastal Gillnet	1	Harp Seal (WNA)	3	Unavailable
Atlantic	North Atlantic Bottom Trawl	3	Harp Seal (WNA)	10	Unavailable
Atlantic	Northeast Drift Gillnet	2	Spinner Dolphin (WNA)	0.31	Unavailable
Pacific	Hawaiian Gillnet***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52

Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N _{min}
Pacific	Hawaiian Pelagic Longline***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378
Pacific	Northwest Hawaiian Deep Sea Bottomfish***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378
<p>* According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N_{min} was 26,880 in 1993. Unless the population has decreased substantially, it is likely that this stock would experience a level of incidental mortality and serious injury less than T_{ins} under all alternatives.</p> <p>** While no mortality estimates are available, stranding data indicate that incidental interactions with the Gulf of Mexico gillnet fisheries result in mortality and serious injury.</p> <p>*** While no mortality data exist, it is possible that this fishery is responsible for incidental mortality and serious injury because interactions between marine mammals and these fisheries have been observed.</p> <p>Sources: NMFS, 2003b & 2003c.</p>					

Regarding the 19 stocks with insufficient data to determine whether ZMRG has been met, 14 commercial fisheries are responsible or likely responsible for incidental interactions. Six are in the Alaska region, five are in the Atlantic region, and three are in the Pacific region (concentrated in the Hawaiian area). While the Gulf of Mexico gillnet, Hawaiian gillnet, Hawaiian pelagic longline, and Northwest Hawaiian deep sea bottomfish fisheries do not have data linking them directly to incidental mortality or serious injury of marine mammals, stranding data and observation of marine mammal interactions indicate that they are probably responsible for interactions with the stocks listed accordingly in Table 4-12. For the fisheries that are known to be responsible for marine mammal incidental mortality and serious injury, it is not known whether these fisheries meet the ZMRG because there is no available N_{min} for those stocks. Therefore, T_{ins} cannot be calculated for those stocks.

Under each alternative, the existing TRTs would continue meeting. All existing TRTs address stocks that do not meet the ZMRG according to T_{ins} as calculated under each

alternative. In other words, the fisheries that are the foci of current TRTs would not meet ZMRG regardless of which alternative is implemented. Under the action alternatives, which define ZMRG, the TRT would be required to include measures in the TRP to achieve ZMRG.

Under the No Action Alternative and Alternative 2, the fishery classification scheme would not change, and there would be no impacts on the process to produce the annual LOF. If Alternatives 3 or 4 were implemented, a new fishery classification scheme would be necessary as the triggers to categorize fisheries would no longer correspond with existing criteria. For the purposes of this analysis and because NMFS has identified Alternative 2 as the preferred alternative, a potential new fishery classification scheme will not be analyzed in this EA.

4.2.1 Alternative 1: No Action Alternative

Without a regulatory definition of ZMRG, TRTs would continue not to be able to properly quantify the long-term goal (achieving ZMRG) for a stock's reduction in incidental mortality and serious injury because no target for reduction would exist. There would be no basis for determining when a fishery no longer has to reduce incidental mortality and serious injury. This would perpetuate the current difficulty in determining when TRTs may be terminated because the TRT would lack adequate regulatory guidance to create a TRP that reduces incidental mortality and serious injury enough to achieve the ZMRG. Such ambiguity may stifle fishermen's incentives to modify gear or fishing practices to reduce bycatch and interactions with marine mammals. Such ambiguity may also unnecessarily extend the TRT process, which could cost participants time and money.

The No Action Alternative would not likely result in any direct, socioeconomic impacts on US commercial fisheries. However, the possibility would exist that a TRT may interpret ZMRG as having a target equal to zero, which could result in potential, minor socioeconomic impacts. Under the No Action Alternative, all existing TRTs would continue to meet as they currently do. The No Action Alternative would not change the TRT process as it currently exists, and therefore, would not give the TRTs sufficient guidance (no specific target) regarding achievement of their long-term goal as provided in Section 118(f) of the MMPA.

However, potential minor, indirect, negative and positive, socioeconomic impacts could result, although unlikely, from the fact that the ZMRG would remain undefined. Without a ZMRG definition, TRTs have no quantified long-term goal for the TRP. These minor, indirect socioeconomic impacts relate to opportunity costs and to direct costs resulting from potential management measures included in a TRP. Opportunity costs apply to the TRT participants and directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income during TRT meetings. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. Negative impacts may occur if the ambiguity causes a

TRT to meet for a longer time than necessary. Positive impacts may occur if the ambiguity causes a TRT to meet for a shorter time period; however, such positive impacts could result in less reduction of incidental mortality and serious injury, which is a negative ecological impact.

The fishery as a whole may have fewer negative socioeconomic impacts under the No Action Alternatives than under the action alternatives due to the possibility that less-stringent measures would be implemented in a TRP without a defined ZMRG. Less-stringent measures would likely result in fewer direct costs to the fishermen, depending on the provisions of the TRP. Therefore, the No Action Alternative is likely to have fewer negative socioeconomic impacts on all fishery participants than the action alternatives. However, such results may cause less reduction of incidental mortality and serious injury for marine mammals, which would be a negative ecological impact.

Like in section 4.1.1, data for the No Action Alternative are identical to those for Alternative 2 and are analyzed in section 4.2.2.

4.2.2 Alternative 2: Preferred Alternative

As the most conservative alternative, Alternative 2 would result in the greatest number of fisheries exceeding insignificant levels of mortality and serious injury (see Table 4-13). Therefore, Alternative 2 would result in the greatest number of fisheries requiring reduction of incidental mortality and serious injury.

Table 4-13
Summary: Commercial Fisheries with
Incidental Mortality and Serious Injury Exceeding T_{ins}

Region	Alternative 1: No Action*	Alternative 2	Alternative 3	Alternative 4
Alaska	4	4	0	3
Atlantic	8	8	5	6
Pacific	6	6	3	4
TOTAL	18	18	8	13
<small>* For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR). Sources: NMFS, 2003b & 2003c.</small>				

Because Alternative 2 would affect the greatest number of fisheries and may result in the most-stringent measures in TRPs, it would have the largest number of potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. Also, because Alternative 2 is protective of the most marine mammal stocks and most protective of endangered species, more effort and more-stringent measures may be required to achieve the long-term goal of TRPs under Alternative 2 than under the other alternatives. Indirect, socioeconomic impacts relate to opportunity costs, such as lost fishing time and increased fishing restrictions. Opportunity costs to the TRT participants

directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs.

The costs to all fishery participants would result from potential TRP measures, such as time and area closures and gear modification or replacement, which would reduce their fishing effort and likely result in direct costs to the fishermen. Such direct costs could include gear replacement and fuel to get to new fishing areas if some are closed. Alternative 2 would impose more potential costs on TRT participants than any of the other alternatives because a greater number of fisheries would be subject to the TRT process (see Table 4-13), and because Alternative 2 is the most biologically conservative alternative, it could result in the most-stringent measures in TRPs.

4.2.2.1 Alaska Region

Under Alternative 2, four commercial fisheries in the Alaska region would not achieve the ZMRG. Of the four fisheries, three would not meet the ZMRG for one stock each, and one would not meet the ZMRG for two different stocks (see Table 4-14).

Table 4-14
Commercial Fisheries in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Unknown (includes Hawaiian area)	N/A*	Humpback whale (CNP)	2.6	0.74	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.07	0.7
		Killer whale (ENP Transient)	0.4	0.28	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.72	7.2
Unknown Bering Sea fishery	N/A*	Humpback whale (WNP)	≥ 0.2	0.07	0.7

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
Sources: NMFS, 2003b & 2003c.

4.2.2.2 Atlantic Region

Under Alternative 2, eight commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the eight fisheries, five would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for five stocks (see Table 4-15).

Table 4-15
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Risso's Dolphin (WNA)	48	22	220
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	36.4	364
		Bottlenose Dolphin (WNA offshore)	26	24.9	249
		Common Dolphin (WNA)	29	22.7	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.7	747
		Harbor Seal (WNA)	953	549.3	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.16	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.16	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	122	22.7	227
		Long- and Short-Finned Pilot Whales (WNA)	76	10.8	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	10.8	108
		Risso's Dolphin (WNA)	48	22	220
		Pygmy Sperm Whale (WNA)	6	0.37	3.7
Northeast Atlantic Herring Joint Venture Mid-Water Trawl	(2)*	Long- and Short-Finned Pilot Whales (WNA)	11	10.8	108
* While the domestic fishery is in Category 2, there is technically no category for a joint-venture fishery because a joint venture fishery is international. Sources: NMFS, 2003b & 2003c.					

4.2.2.3 Pacific Region

Under Alternative 2, six commercial fisheries in the Pacific region would not achieve the ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, and two would not meet the ZMRG for four stocks each (see Table 4-16).

Table 4-16
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	1.1	11
		Harbor Porpoise (Morro Bay)	4.8	0.7	7
		Harbor Seal (California)	429	154.3	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Fin Whale (CA/OR/WA)	1	0.51	5.1
		Northern Right-Whale Dolphin (CA/OR/WA)	23	16.4	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.119	1.19
		Sperm Whale (CA/OR/WA)	1	0.18	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2	20
CA/OR/WA Salmon Troll	3	Humpback Whale (ENP)	> 0.2	0.135	1.35
Unknown	N/A*	Humpback Whale (ENP)	> 0.6	0.135	1.35
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.3	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.08	0.8

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 ** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
 Sources: NMFS, 2003b & 2003c.

4.2.3 Alternative 3

As the least conservative alternative, Alternative 3 would result in the fewest fisheries exceeding insignificant levels of incidental mortality and serious injury (see Table 4-13). Therefore, Alternative 3 would result in the fewest number of fisheries requiring reduction of incidental mortality and serious injury.

Because Alternative 3 would affect the fewest number of fisheries and may result in the least-stringent measures in TRPs, it would have the fewest potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Also, because Alternative 3 is generally the least protective of marine mammal stocks, less effort would likely be required to achieve the long-term goal of TRPs under Alternative 3 than under the other alternatives. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to opportunity costs. Opportunity costs to the TRT participants directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. The opportunity costs to all fishery participants would result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Under Alternative 3, opportunity costs would be small because fewer fisheries would be subject to TRTs than under any other alternative and because TRPs may include the least-stringent measures when compared to the other alternatives.

Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

4.2.3.1 Alaska Region

Under Alternative 3, only the commercial fisheries in the Alaska region that interact with the WNP stock of humpback whales would fail to achieve the ZMRG. Although the WNP stock of humpback whales would have incidental mortality and serious injury (0.8) exceeding insignificant levels ($T_{ins} = 0.734$), no single fishery is responsible for enough incidental mortality and serious injury to prevent it from achieving the ZMRG according to the first criterion (see discussion of the two-tiered approach in section 2.2) under Alternative 3. However, as provided in Section 118(f)(2) of the MMPA, a TRT still has the long-term goal for commercial fishing operations to achieve ZMRG for a strategic stock. Implementing the second criterion of the two-tiered approach, ten percent of T_{ins} for this stock under Alternative 3 would be 0.0734. The BSAI groundfish trawl and an unknown fishery are the only fisheries that interact with this stock, and they both have estimated annual fishery mortalities (0.6 and 0.2, respectively) that exceed ten percent of T_{ins} . Therefore, a TRP would be necessary for both fisheries to reduce incidental mortality and serious injury of the WNP stock of humpback whales.

4.2.3.2 Atlantic Region

Under Alternative 3, five commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the five fisheries, two would not meet the ZMRG for one stock each, two would not meet the ZMRG for two stocks each, and one would not meet the ZMRG for three stocks (see Table 4-17).

Table 4-17
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T _{ins}	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	149.39	747
		Harbor Seal (WNA)	953	549.276	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	30.27	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	90	47.31	227
		Long- and Short-Finned Pilot Whales (WNA)	76	22.686	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	22.686	108
		Risso's Dolphin (WNA)	48	45.832	220
		Pygmy Sperm Whale (WNA)	6	0.746	3.7
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. Sources: NMFS, 2003b & 2003c.					

4.2.3.3 Pacific Region

Under Alternative 3, three commercial fisheries in the Pacific region would not achieve the ZMRG. Of the three fisheries, one would not meet the ZMRG for one stock, one would not meet the ZMRG for two stocks, and one would not meet the ZMRG for four stocks (see Table 4-18).

Table 4-18
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	2.284	11
		Harbor Porpoise (Morro Bay)	4.8	1.338	7
		Harbor Seal (California)	429	154.32	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.298	1.19
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	5.09	20
		False Killer Whale (Hawaii)	4.6-6.9**	0.166	0.8

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 ** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
 Sources: NMFS, 2003b & 2003c.

4.2.4 Alternative 4

As the moderately conservative alternative, Alternative 4 would result in a moderate number of fisheries responsible for exceeding insignificant levels of incidental mortality and serious injury (see Table 4-13). Therefore, Alternative 4 would result in a moderate number of fisheries requiring reduction of incidental mortality and serious injury.

Because Alternative 4 would affect a moderate number of fisheries and may result in moderately-stringent measures in TRPs, it would have moderate amounts of potential, minor, direct and indirect, negative impacts on fishery socioeconomics when compared to the other alternatives. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to opportunity costs. Opportunity costs to the TRT participants directly correlate with the

length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. The opportunity costs to all fishery participants would result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Under Alternative 4, opportunity costs would be moderate due to the number of fisheries that would be subject to TRTs when compared to other alternatives because TRPs may include moderately-stringent measures when compared to the other alternatives.

Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

4.2.4.1 Alaska Region

Under Alternative 4, three commercial fisheries in the Alaska region would not achieve the ZMRG. Of the three fisheries, two would not meet the ZMRG for one stock each, and one would not meet the ZMRG for two stocks (see Table 4-19).

Table 4-19
Commercial Fisheries in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Unknown	N/A*	Humpback Whale (CNP)	2.6	3.698	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.367	0.7
		Killer whale (ENP Transient)	0.4	0.346	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.723	7.2
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. Sources: NMFS, 2003b & 2003c.					

4.2.4.2 Atlantic Region

Under Alternative 4, six commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for five stocks (see Table 4-20).

Table 4-20
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T _{ins}	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	37.904	364
		Bottlenose Dolphin (WNA offshore)	26	24.897	249
		Common Dolphin (WNA)	29	23.655	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.695	747
		Harbor Seal (WNA)	953	274.638	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.14	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.14	151.6
Atlantic Squid, Mackerel, and Butterfish Trawl	1	Common Dolphin (WNA)	122	23.655	227
		Long- and Short-Finned Pilot Whales (WNA)	76	11.343	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	11.343	108
		Risso's Dolphin (WNA)	48	22.916	220
		Pygmy Sperm Whale (WNA)	6	0.373	3.7
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. Sources: NMFS, 2003b & 2003c.					

4.2.4.3 Pacific Region

Under Alternative 4, four commercial fisheries in the Pacific region would not achieve the ZMRG. Of the four fisheries, one would not meet the ZMRG for one stock, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for four stocks (see Table 4-21).

Table 4-21
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species/Stock	Estimated Annual Mortality	T _{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	416.643	8333
		Harbor Porpoise (Monterey Bay)	3	1.142	11
		Harbor Porpoise (Morro Bay)	4.8	0.669	7
		Harbor Seal (California)	429	77.16	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Northern Right-Whale Dolphin (CA/OR/WA)	23	16.417	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.149	1.19
		Sperm Whale (CA/OR/WA)	1	0.885	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2.545	20
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.313	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.083	0.8

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.

** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.

Sources: NMFS, 2003b & 2003c.

4.3 Regulatory Impacts

This section discusses the regulatory impacts of implementing each alternative with regard to applicable laws, namely the MMPA, ESA, Magnuson-Stevens Act, EO 12866, and RFA. Only the MMPA and the Magnuson-Stevens Act are discussed individually under each alternative.

None of the alternatives are likely to adversely affect ESA-listed species or their critical habitat. Listed species are discussed above in section 4.1. Therefore, no formal Section 7 consultation is necessary under any of the alternatives (see Appendix B).

In conjunction with this EA, NMFS will publish an analysis in accordance with NMFS procedures to determine compliance with EO 12866 and the RFA (see Appendix C).

4.3.1 Alternative 1: No Action Alternative

4.3.1.1 MMPA

The implementation of the No Action Alternative would be inconsistent with the MMPA. Section 118 of the MMPA requires commercial fisheries to meet the ZMRG. Without a defined ZMRG, it would be difficult for a fishery to meet that goal. According to the April 2003 settlement agreement, NMFS agreed to define ZMRG in a final rule. The No Action Alternative would prevent NMFS from abiding by the agreement. Therefore, the No Action Alternative is not a feasible option.

4.3.1.2 Magnuson-Stevens Act

The No Action Alternative would have an indirect, minor, negative effect on the Magnuson-Stevens Act concerning bycatch reduction. Because there would be no regulatory definition of ZMRG under the No Action Alternative, TRTs would be less likely to develop and require measures in TRPs to reduce marine mammal incidental mortality and serious injury to an insignificant level approaching a zero rate. Since such measures could have ancillary benefits for bycatch reduction of other species, the resulting indirect, minor, negative effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may not be reduced as much as it would be with a defined ZMRG.

The No Action Alternative would not affect EFH, and therefore, no formal consultation with the NMFS Office of Habitat is required (see Appendix B).

4.3.2 Alternative 2: Preferred Alternative

4.3.2.1 MMPA

By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to ten percent or less of PBR (see Table 2-1), Alternative 2 would be consistent with the requirements of MMPA Section 118 related to ZMRG. Also, Alternative 2 would be consistent with all other sections of the MMPA.

4.3.2.2 Magnuson-Stevens Act

Alternative 2 would have a minor, positive effect bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 2 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. Also, an indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications or other restrictions that would reduce bycatch of other non-target species as a positive side effect of techniques to reduce marine mammal incidental mortality and serious injury.

Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be greatest under Alternative 2 because it is the most protective alternative (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 2 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

4.3.3 Alternative 3

4.3.3.1 MMPA

Alternative 3 would be consistent with the April 2003 settlement agreement in defining ZMRG, but it would not be fully consistent with the MMPA. By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to a point that causes no more than a ten-percent recovery delay (see Table 2-1), Alternative 3 would be consistent with the requirements of Section 118(b) but would not be consistent with the requirements of Section 118(f)(2). Section 118(f)(2) describes the short- and long-term goals of TRPs. For endangered species under Alternative 3, T_{ins} would be equal to PBR. This is inconsistent with the two separate goals of TRPs. Therefore, Alternative 3 would not be feasible.

4.3.3.2 Magnuson-Stevens Act

Like Alternative 2, Alternative 3 would have an indirect, minor, positive effect on bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 3 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. The indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications and other restrictions that would reduce bycatch of other non-target species as a positive side effect to the techniques to reduce marine mammal incidental mortality and serious injury. Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be the smallest under Alternative 3 because it is the least protective alternative (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 3 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account

possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

4.3.4 Alternative 4

4.3.4.1 MMPA

By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to a point that causes no more than a five-percent recovery delay (see Table 2-1), Alternative 4 would be consistent with requirements of Section 118 related to the ZMRG. Also, Alternative 4 would be consistent with all other sections of the MMPA.

4.3.4.2 Magnuson-Stevens Act

Like Alternative 3, Alternative 4 would have an indirect, minor, positive effect on bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 4 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. The indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications and other restrictions that would reduce bycatch of other non-target species as a positive side effect to techniques to reduce marine mammal incidental mortality and serious injury. Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be moderate under Alternative 4 (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 4 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

4.4 Cumulative Impacts

This section discusses the cumulative impacts of implementing an alternative. Such impacts include effects on institutions and management concepts that are beyond the realm of Section 118 of the MMPA. Because the No Action Alternative would not result in any impacts beyond those mentioned in above sections, this section addresses cumulative impacts only for the action alternatives.

Generally, the cumulative impacts would be the same for each of the action alternatives. Because regulatory measures to achieve the ZMRG would not be developed until TRTs convene, specific impacts on protected marine populations and on commercial fisheries will be analyzed in the future in separate NEPA documents for the TRPs. The impacts of defining the ZMRG under any action alternative would be consistent with other fishery regulatory programs. All fishery regulatory programs concerning marine mammals are dedicated to protecting and conserving marine mammals while considering socioeconomic effects on the fishing industry. The action alternatives in this EA would contribute positively to most of these programs by ultimately reducing the number and intensity of marine mammal interactions with commercial fisheries.

The only minor, negative cumulative effects on regulatory procedures would apply to Alternatives 3 and 4 regarding fishery categories. Under Alternatives 3 and 4, the fishery classification procedure would have to be redesigned because the criteria to categorize fisheries in the LOF would not be consistent with the ZMRG definitions. Such a process would have minor, negative effects on NMFS as it would require time to design and implement a new classification scheme, which is used in the annual LOF and SARs. However, the preferred alternative, Alternative 2, would not require a new fishery classification scheme as the ZMRG definition would correspond to the categorizing criteria currently used to produce the LOF.

The socioeconomic effects on commercial fisheries are not quantifiable at this stage; future NEPA documents for specific TRPs would address specific socioeconomic impacts for those TRPs. However, under any of the action alternatives most commercial fisheries (approximately 90 percent) would not have to further reduce incidental mortality and serious injury of marine mammals. Also, when considered in combination with other fishery regulations already in place, additive effects of the preferred alternative on socioeconomics of the commercial fishing industry are expected to be minor. Such minor, negative effects may include slight increases in costs to commercial fishermen to abide by required TRP measures required to achieve ZMRG. Minor, positive effects may include increased landings of the target species if future required measures reduce bycatch enough to increase landings per trip for the intended catch.

The action alternatives may have minor, indirect effects on other industries associated with commercial fishing. Such industries include gear manufacturing and the seafood industry. Effects on gear manufacturers would be correlated to any gear modifications proposed by TRPs. Gear modifications could result in substantial, short-term, positive effects on gear manufacturers if a new type of gear is developed and required by new

TRPs. Minor, long-term, positive impacts may result if TRP requirements include any language to replace or mend gear in regular time cycles. Fishermen who do not make their own gear would rely on gear manufacturers and contribute financially to that industry, thus boosting its economy.

The seafood industry includes seafood processors, restaurants, and markets. Ultimately, the seafood consumer may be affected as well. If the costs to fishermen increase as a result of TRP provisions (i.e., gear modification/replacement or seasonal/area closures) required to attain the ZMRG, the cost of fish may increase throughout the seafood industry. The degree of such economic ripple effects would depend on specific TRP provisions.

Finally, implementation of a proposed action alternative may, in the long term, result in fewer takes of marine mammals nationwide, which is a moderate, positive, long-term impact. This may allow NMFS to focus more regulatory effort on methods to reduce other human-caused mortality and serious injury, such as vessel strikes and marine pollution.

4.5 Consideration of Significant Criteria

In this EA, the context and intensity of the factors identified in NOAA's NEPA guidelines and regulations (see section 1.7) were considered as well as short- and long-term effects of the proposed action. This section focuses on the preferred alternative, Alternative 2, and addresses the criteria from the guidelines and regulations as follows:

1. No significant beneficial or adverse environmental effects are expected. While beneficial environmental effects are expected under the preferred alternative in the form of marine mammal conservation, it is not expected that such effects would significantly alter the populations of affected marine mammals. Minor, adverse socioeconomic effects on the commercial fishing industry may result in slightly increased costs to the fishermen. However, such costs could be balanced by increased landings of the target species as future TRP measures required to achieve ZMRG would likely reduce bycatch and thus increase the fishermen's profits.

2. The preferred alternative is not expected to impact public health and safety. It is expected that future TRP measures would not negatively affect health and safety of any commercial fishermen. However, any potential effects on health and safety, based on specific TRP measures, would be analyzed in future NEPA documents for those specific TRPs.

3. The geographic area of the preferred alternative includes what could be considered unique characteristics such as EFH and critical habitat because the EA concerns all US commercial fisheries. However, the proposed action is directed at reducing incidental mortality and serious injury of marine mammals and is not expected to result in any impacts on the physical environment.

4. The effects of the preferred alternative on the human environment are not likely to be highly controversial. While comments were received in response to the ANPR from several different viewpoints, many comments agreed with the preferred alternative or are not consistent with the intent of the MMPA as described in section 2.3. Additionally, the preferred alternative is very similar to the No Action Alternative; controversy is unlikely because the preferred alternative simply gives regulatory power to the status quo, which is using ten percent of PBR as the T_{ins} when defining ZMRG. For these reasons, the preferred alternative is not highly controversial to the extent that the preparation of an EIS is necessary.

5. The effects of the preferred alternative are not highly uncertain, nor do they involve unique or unknown risks. The effect of defining the ZMRG is that TRTs would have quantifiable long-term goals for the TRPs. Although specific regulatory measures of future TRPs are unknown, it is certain that the effects of such measures would benefit the conservation of marine mammal as provided by the MMPA and cause minimal impacts on the commercial fishing industry when taken into consideration with other commercial fishing regulations. No unique or unknown risks would result from implementing such measures.

6. Defining the ZMRG does not establish a precedent for future actions with significant effects. The ZMRG is already a mandate as provided by the MMPA so defining the ZMRG would not set any precedent for future actions. Any future regulatory measures designed to achieve the ZMRG would require independent NEPA analysis. Similarly, no decision in principle about a future consideration is involved because specific TRTs would develop future measures required for a fishery or group of fisheries to achieve the ZMRG. A resulting TRP would require its own NEPA analysis before implementing any such measures. Therefore, defining ZMRG according to the preferred alternative would not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration.

7. There are no individually insignificant but cumulatively significant impacts of the proposed action. As discussed, there are other commercial fishing regulations in place and the additive effects of defining the ZMRG are minor. Socioeconomic effects would be minimal because the ZMRG is already a requirement as provided by the MMPA. The preferred alternative would create a regulatory definition of the ZMRG that would quantify the long-term goal of TRPs. Regarding impacts on marine mammals, the expected effects would be to decrease the amount of incidental mortality and serious injury, but such effects are not expected to be significant.

8. The proposed action would not adversely affect entities listed in or eligible for listing in the National Register of Historic Places, nor would it cause loss or destruction of significant scientific, cultural, or historic resources.

9. The proposed action is not expected to have a significant adverse impact on endangered or threatened species, and is not expected to affect designated critical habitat.

981 The preferred alternative is designed to have beneficial effects on endangered or
982 threatened marine mammals by reducing incidental mortality and serious injury. Also,
983 future TRP measures required to achieve ZMRG are not expected to adversely affect
984 critical habitats.

985
986 10. The proposed action would not be in violation of Federal, state, or local laws for
987 environmental protection.

988
989 11. The proposed action is not likely to result in the introduction or spread of a
990 nonindigenous species. The proposed action applies to the commercial fishing industry
991 and does not involve potential species transfer.
992

5.0 REGULATORY IMPACT REVIEW

5.1 Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to reduce the impacts of burdensome regulations and record keeping on small businesses. To achieve this goal, the RFA requires government agencies to describe and analyze the effects of the regulations and possible alternatives on small business entities. On the basis of this information, the Regulatory Impact Review determines whether the proposed action would have a “significant economic impact on a substantial number of small entities.”

The main elements of the RFA are discussed fully in several sections of this document and the relevant sections are incorporated by reference. The following discussion summarizes the consequences for small entities of the proposed action and non-preferred management options to define an insignificance threshold, which is the target level of mortality and serious injury of marine mammals incidental to commercial fishing operations, under the ZMRG.

5.2 Problem Statement

The purpose of and need for defining an insignificance threshold to implement the ZMRG is described in chapter 1 of this EA.

5.3 Objectives

The objectives of this proposed rule is described in Section 1.1 of this document.

5.4 Alternatives

The alternatives considered as an insignificance threshold are discussed in chapter 2 of this document.

5.5 Steps Taken to Minimize the Economic Impact

This proposed rule contains only one action, which is to define through regulation an insignificance threshold as the upper limit of annual incidental mortality and serious injury of marine mammal stocks that can be considered insignificant levels approaching a zero mortality and serious injury rate. An insignificance threshold is estimated as ten percent of the PBR for a stock of marine mammals. With such a limited purpose, steps to

minimize economic impact are not feasible in the proposed rule; however, the MMPA states that in reducing incidental mortality and serious injury to the long-term goal through the development and implementation of take reduction plans, NMFS must take into account the economics of affected fisheries. Therefore, steps to minimize the adverse economic impact of reducing incidental mortality and serious injury would be included in the development and implementation of take reduction plans to meet the long-term goal of reducing incidental mortality and serious injury to insignificant levels approaching a zero mortality and serious injury rate.

5.6 Determination of Insignificant Economic Impact on a Substantial Number of Small Entities

As noted in chapter 4 of this document, the No Action Alternative would result in no regulatory definition of an insignificance threshold, and all remaining alternatives would define such a threshold. An important component of the ZMRG is that once a fishery has achieved an insignificant level of mortality and serious injury, approaching a zero mortality and serious injury rate, then that fishery does not have to reduce its incidental mortality and serious injury further. Therefore, defining the insignificance threshold establishes a regulatory limit to the need to reduce mortality and serious injury. Without such a limit, there would be no threshold below which mortality and serious injury must be reduced. Alternatives 2-4, therefore, would have an economic benefit to the fishing industry compared to the No Action Alternative by establishing a limit to the need to reduce incidental mortality and serious injury.

Chapter 4 indicates the number of and identifies fisheries in each region that would have incidental mortality above the insignificance threshold of at least one stock of marine mammals under the alternatives to define the insignificance threshold. The numbers of such fisheries are 21, 12, and 16 for Alternatives 2-4, respectively (see Table 4-13). The list of fisheries for 2003 identifies a total of 189 fisheries. Therefore, defining an insignificance threshold would be beneficial to 168-177 fisheries (89%-94%), depending upon which alternative was selected because it would be recognized in developing and implementing take reduction plans that most fisheries had already achieved target levels for reducing incidental mortality and serious injury.

Alternative 3 would result in the least number of fisheries being above the insignificance thresholds of stocks of marine mammals; however, as noted in the proposed rule, Alternative 3 is inconsistent with provisions of the MMPA that require a short-term (PBR) and long-term (insignificant levels approaching a zero mortality and serious injury rate) goal for TRPs. Therefore, Alternative 3 would be an unacceptable alternative.

Alternatives 2 and 4 produce equal values for insignificance thresholds of most marine mammals (those of threatened, depleted, or unknown status and having a recovery factor of 0.5 for calculation of PBR). Therefore, fisheries that take any of these stocks would be affected in the same manner under Alternatives 3 and 4. Alternative 2 results in a higher

insignificance threshold for robust stocks (those stocks within OSP or are increasing even when human-caused mortality and serious injury exceeds the calculated PBR and which have a recovery factor of 1.0 for calculating PBR) than does Alternative 4. However, Alternative 2 results in a lower insignificance threshold, therefore, a lower target for reducing mortality and serious injury, for endangered stocks (recovery factor of 0.1 used in the PBR calculation) than Alternative 4. The effect of the lower insignificance threshold for endangered stocks resulting from Alternative 2 means that more fisheries (21) would be above the insignificance threshold than would be the case with Alternative 4 (16).

If mortality and serious injury incidental to a fishery exceed the insignificance threshold of any stock of marine mammals and the fishery is a Category I or II fishery that interacts with a strategic stock, then that fishery is subject to regulation under the TRP process in the MMPA to reduce incidental mortality and serious injury to insignificant levels approaching a zero mortality and serious injury rate. In developing and implementing a plan to reduce incidental mortality and serious injury to meet this goal, NMFS must consider available technology, the economics of the affected fisheries and existing state and regional fishery management plans. Further, the legislative history of the MMPA indicates strongly that Congress did not intend for fisheries to be subjected to a substantial economic burden to meet this goal of the MMPA. Thus, the economic impact of reducing mortality and serious injury of marine mammals would be somewhat limited by appropriate consideration of the economics of affected fisheries when NMFS develops and implements take reduction plans. Furthermore, the MMPA recognizes that appropriations may be insufficient to develop and implement all take reduction plans at once and provided priorities for convening teams. Because resources for marine mammal conservation are not expected to increase substantially in the future, the development of new take reduction plans is expected to be slow, and the accompanying economic effects would be further limited by sequential, rather than concurrent, development of new take reduction plans.

Because the cost of implementing measures to reduce mortality and serious injury in accordance with the ZMRG would be known only when take reduction plans have been developed so that the specific regulatory actions are identified, this analysis is limited to a qualitative evaluation of the economic effects of the alternatives. Each alternative has the potential to effect small entities (businesses and local governments of coastal communities). Most fishing vessels are owned and operated by small business, and most coastal communities are small governments. Coastal communities would be affected by the extent to which fishing businesses in the communities are affected.

This proposed rule would define an insignificance threshold as the upper limit of annual incidental mortality and serious injury of marine mammal stocks by commercial fisheries that can be considered insignificant levels approaching a zero mortality and serious injury rate. This definition would not, by itself, place any additional restrictions on the public. Under provisions of the MMPA, a take reduction team must be established and a take reduction plan developed and implemented within certain time frames if a strategic stock of marine mammals interacts with a Category I or II commercial fishery. The long-term

goal of a take reduction plan is to reduce mortality and serious injury of marine mammals to insignificant levels approaching a zero mortality and serious injury rate, taking into account the economics of affected fisheries, the availability of existing technology, and existing state or regional fishery management plans. Any measures identified in a take reduction plan to reduce incidental mortality and serious injury would require separate rulemaking action before the action could be implemented. Any subsequent restrictions placed on the public to protect marine mammals would be included in separate regulations, and appropriate analyses under the Regulatory Flexibility Act would be conducted during those rulemaking procedures. Hence, implementation of this proposed rule would not have a significant economic impact on a substantial number of small entities. As a result, no regulatory flexibility analysis for this proposed rule has been prepared.

5.7 Determination of Insignificant Regulatory Action

Executive Order 12866 defines a “significant regulatory action” as one that is likely to result in: a) an annual effect on the economy of \$100M or more or one which adversely affects in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; b) a serious inconsistency or interference with an action taken or planned by another agency; c) novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

The most notable effect of this rule would be to clarify through regulation the limit to which fisheries had to reduce mortality and serious injury. The proposed rule would clarify that most fisheries had achieved target levels of mortality consistent with the ZMRG and would not have to further reduce incidental mortality and serious injury. Thus, the major impact would be to formalize the current practice through regulation; therefore, the fishing industry and affected local communities would not be subjected to significant additional impact. Existing regulatory actions to reduce mortality and serious injury of marine mammals incidental to fishing operations have been determined to be insignificant, and the combined effect of the present alternatives and existing regulations would remain insignificant.

As noted above, the major impact of the alternatives other than the No Action alternative is positive because each of these alternatives would establish, through regulation, a limit to the extent to which fisheries would have to reduce incidental mortality and serious injury of marine mammals. Alternative 3 is not consistent with the MMPA and is, therefore, not an acceptable alternative. Under Alternatives 2 and 4 most fisheries (89% and 94%, respectively) are already below the target level of mortality and serious injury and would not have to reduce mortality and serious injury any further. For the fisheries that have mortality and serious injury levels that exceed the insignificance threshold of any stock, take reduction plan would eventually have to be developed, and these plans would have to take into account the economic feasibility of measures to reduce mortality

180 and serious injury in the long-term goal of TRPs. The new take reduction plans would
181 have to be developed slowly over time because appropriations are insufficient to develop
182 and implement new plans at this time. Accordingly, the economic impact of the
183 alternatives to define an insignificance threshold would be less than \$100 million;
184 therefore, the rule would be not significant for purposes of Executive Order 12866.
185 Furthermore, the alternatives would not have a significant impact on a substantial number
186 of small entities, and a regulatory flexibility analysis in addition to this preliminary
187 analysis is not required.
188
189
190

6.0 LIST OF PREPARERS

This Environmental Assessment was prepared by:

EARTH TECH

675 N. Washington Street, Suite 300
Alexandria, Virginia 22314

Key personnel included:

Harriet Nash, Project Manager, Marine Biologist: 5 years of experience in fishery biology, coastal management, and preparing environmental impact documentation. Georgetown University, 1995, BS, Biology; Duke University, 2001, MEM, Coastal Environmental Management.

Christine M. Ross, Editor, Marine Biologist: 19 years of experience in designing and coordinating ecological investigations and biological monitoring programs, and preparing environmental impact documentation. Stockton State College, 1985, BS, Marine Science.

Key participants from NOAA included:

Tanya Dobrzynski, Fisheries Biologist, Office of Protected Resources, National Marine Fisheries Service, Silver Spring, MD.

Tom Eagle, Fisheries Biologist, Office of Protected Resources, National Marine Fisheries Service, Silver Spring, MD.

7.0 REFERENCES

- Barlow, Jay, Steven L. Swartz, Thomas C. Eagle, and Paul R. Wade. 1995. *U.S. Marine Mammal Stock Assessments: Guidelines for Preparation, Background, and a Summary of the 1995 Assessments*. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-OPR-6.
- Harrison, P. 1983. *Seabirds, an Identification Guide*. Houghton Mifflin. Boston, MA.
- National Marine Fisheries Service (NMFS). 1983. *Recovery Plan for the Hawaiian Monk Seal, Monachus schauinslandi*. Prepared by William G. Gilmartin for NMFS, Silver Spring, MD.
- NMFS. 1991a. *Recovery Plan for the Humpback Whale (Megaptera novaeangliae)*. Prepared by the Humpback Whale Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1991b. *Recovery Plan for the Northern Right Whale (Eubalaena glacialis)*. Prepared by the Right Whale Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1992. *Recovery Plan for the Steller Sea Lion (Eumetopias jubatus)*. Prepared by the Steller Sea Lion Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1993. *Final Conservation Plan for the northern fur seal (Callorhinus ursinus)*. Prepared by the National Marine Mammal Laboratory/Alaska Fisheries Science Center, Seattle, WA and the Office of Protected Resources/National Marine Fisheries Service, Silver Spring, MD.
- NMFS. June 1995a. *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act*.
- NMFS. June 16, 1995b. "Taking of Marine Mammals Incidental to Commercial Fishing Operations; Authorization for Commercial Fisheries; Proposed List of Fisheries." Proposed rule; request for comments. *Federal Register*: Vol. 60, No. 116.
- NMFS. August 30, 1995c. "Taking of Marine Mammals Incidental to Commercial Fishing Operations; Authorization for Commercial Fisheries; Proposed List of Fisheries." Final rule. *Federal Register*: Vol. 60, No. 168.
- NMFS. 1998a. *Recovery Plan for the Blue Whale (Balaenoptera musculus)*. Prepared by Reeves, R.R., P.J. Clapham, R.L. Brownell, Jr., and G.K. Silber for NMFS, Silver Spring, MD.
- NMFS. 1998b. *Recovery Plan for the Shortnose Sturgeon (Acipenser brevirostrum)*. Prepared by the Shortnose Sturgeon Recovery Team for NMFS, Silver Spring, MD.

- 47 NMFS. September 2002a. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock*
48 *Assessments – 2002*. NOAA Technical Memorandum NMFS-NE-169. Prepared by
49 Gordon T. Waring, Janeen M. Quintal, and Carol P. Fairfield. Northeast Fisheries
50 Science Center, Woods Hole, Massachusetts.
- 51
52 NMFS. December 2002b. *Alaska Marine Mammal Stock Assessments, 2002*. NOAA
53 Technical Memorandum NMFS-AFSC-133. Prepared by R.P. Angliss and K.L. Lodge.
54 Alaska Fisheries Science Center, Seattle, Washington.
- 55
56 NMFS. December 2002c. *U.S. Pacific Marine Mammal Stock Assessments: 2002*.
57 NOAA Technical Memorandum NMFS-SWFSC-346. Prepared by James V. Carretta,
58 Marcia M. Muto, Jay Barlow, Jason Baker, Karin A. Forney, and Mark Lowry.
59 Southwest Fisheries Science Center, La Jolla, California.
- 60
61 NMFS. July 9, 2003a. “Authorization for Commercial Fisheries under the Marine
62 Mammal Protection Act of 1972; Zero Mortality Rate Goal.” Advanced notice of
63 proposed rulemaking; request for comments. *Federal Register*: Vol. 68, No. 131, p.
64 40888.
- 65
66 NMFS. July 15, 2003b. “List of Fisheries for 2003.” Final rule. *Federal Register*: Vol.
67 68, No. 135, p. 41725.
- 68
69 NMFS. June 2003c. Draft 2003 Stock Assessment Reports. Website accessed January
70 2004.
71 [http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars_draft.html].
- 72
73 NMFS. Website accessed January 2004a. Sea Turtle Protection and Conservation.
74 [http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/turtles.html].
- 75
76 NMFS. Website accessed February 2004b. Anadromous and Marine Fishes.
77 [http://www.nmfs.noaa.gov/prot_res/PR3/Fish/fishes.html].
- 78
79 NMFS. Website accessed February 2004c. Status of Marine Mammals Under the Law.
80 [[http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedm](http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedmms.html)
81 [ms.html](http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedmms.html)].
- 82
83 NMFS. Website accessed March 2004d. Atlantic Large Whale Take Reduction Team.
84 [<http://www.nero.noaa.gov/whaletrp/>].
- 85
86 NMFS. Website accessed March 2004e. Take Reduction Teams.
87 [http://www.nmfs.noaa.gov/prot_res/PR2/Fisheries_Interactions/TRT.htm].
- 88
89 NMFS. March 2004f. Authorization for Commercial Fisheries under the Marine
90 Mammal Protection Act of 1972; Zero Mortality Rate Goal. Proposed Rule. Federal
91 Register: Vol. ??, No. ???, p. ?????.
- 92

- 93 NMFS and USFWS. 1991a. *Recovery Plan for U.S. Population of Atlantic Green*
94 *Turtle*. NMFS, Washington, DC.
95
- 96 NMFS and USFWS. 1991b. *Recovery Plan for U.S. Population of Loggerhead Turtle*.
97 NMFS, Washington, DC.
98
- 99 NMFS and USFWS. 1992a. *Recovery Plan for Leatherback Turtles in the U.S.*
100 *Caribbean, Atlantic, and Gulf of Mexico*. NMFS, Washington, DC.
101
- 102 NMFS and USFWS. 1992b. *Recovery Plan for the Kemp's Ridley Sea Turtle*
103 *(Lepidochelys kempii)*. NMFS, St. Petersburg, FL.
104
- 105 NMFS and USFWS. 1993. *Recovery Plan for the Hawksbill Turtles in the U.S.*
106 *Caribbean Sea, Atlantic Ocean, and Gulf of Mexico*. NMFS, St. Petersburg, FL.
107
- 108 NMFS and USFWS. 1998a. *Recovery Plan for U.S. Pacific Populations of the East*
109 *Green Turtle (Chelonia mydas)*. NMFS, Silver Spring, MD.
110
- 111 NMFS and USFWS. 1998b. *Recovery Plan for U.S. Pacific Populations of the Green*
112 *Turtle (Chelonia mydas)*. NMFS, Silver Spring, MD.
113
- 114 NMFS and USFWS. 1998c. *Recovery Plan for U.S. Pacific Populations of the*
115 *Hawksbill Turtle (Eretmochelys imbricata)*. NMFS, Silver Spring, MD.
116
- 117 NMFS and USFWS. 1998d. *Recovery Plan for U.S. Pacific Populations of the*
118 *Leatherback Turtle (Dermochelys coriacea)*. NMFS, Silver Spring, MD.
119
- 120 NMFS and USFWS. 1998e. *Recovery Plan for U.S. Pacific Populations of the*
121 *Loggerhead Turtle (Caretta caretta)*. NMFS, Silver Spring, MD.
122
- 123 NMFS and USFWS. 1998f. *Recovery Plan for U.S. Pacific Populations of the Olive*
124 *Ridley Turtle (Lepidochelys olivacea)*. NMFS, Silver Spring, MD.
125
- 126 National Oceanic and Atmospheric Administration (NOAA). June 3, 1999.
127 Environmental Review Procedures for Implementing the National Environmental Policy
128 Act. Effective May 20, 1999. Website accessed December 2003.
129 [<http://www.rdc.noaa.gov/~nao/216-6.html>].
130
- 131 USFWS. Website accessed February 2004. [<http://endangered.fws.gov/>].
132
- 133 USFWS and Gulf States Marine Fisheries Commission. 1995. Gulf Sturgeon Recovery
134 Plan. Atlanta, GA.
135
- 136 Wade, Paul R. and Robyn P. Angliss. 1997. *Report of the GAMMS Workshop*. U.S.
137 Department of Commerce, NOAA Technical Memorandum NMFS-OPR-12. Website
138 accessed December 2003. [<http://nmml.afsc.noaa.gov/library/gammsrep/gammsrep.htm>].